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The Horace Dobell Lectures

ON

INSECT PORTERS OF BACTERIAL INFECTIONS.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS.

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LECTURE I.

To intervene successfully in bacterial diseases of man and animals it is most important to know accurately the life-history of the parasite outside the host—how it leaves the old host, how it enters a new host, and where and how it passes the intervening period. If we are in possession of these facts, our efforts in the struggle can, at any rate, be intelligently directed and concentrated against the most vulnerable point of the enemy. The exercise of an adverse influence upon bacteria, once they have gained a footing in the body, has hitherto not been generally successful, although recent developments in chemotherapy have shown that there is ground for optimism in this direction.

In the early days of bacteriology, before the large number of pathogenic bacteria had been discovered and their peculiarities had been studied, it was generally assumed that bacteria once let loose from the body survived long periods upon inanimate objects and in water, soil, etc.; and efforts at prevention were directed to an indiscriminate disinfection of the belongings and surroundings of the patient. Some bacteria do, indeed, possess considerable powers of survival under such circumstances, and I would not be understood to deprecate measures of general disinfection. The majority of pathogenic organisms, however, are fortunately delicate creatures, and rapidly succumb to such adverse influences as drying and sunlight.

Another factor which must not be lost sight of is that many organisms which have acquired by selection the property of withstanding the adverse influence obtaining in the animal body fare ill in the competition with hardy saprophytic colleagues outside the body, and, if certain individuals do survive, these, whilst acquiring the capacity to live upon extracorporeal nutriment, diminish at the same time in pathogenicity. In other words, the conditions select a strain tending more and more towards saprophytism and away from parasitism. For these reasons it behoves us to be especially on the look-out for any machinery through the agency of which bacteria may be rapidly conveyed from sick to healthy, and their travels made easier for them.

In not a few diseases the infective agent usually passes almost directly from patient to patient, such as the organisms of syphilis, plague-pneumonia, diphtheria, measles, scarlet fever, small-pox, and numerous parasitic skin diseases. The spread of such highly infectious diseases can be dealt with by isolation and segregation of contacts, for their range is small.

Of recent years much attention has been bestowed upon the study of the rôle of insects in the transmission of disease. It is not my intention to deal with these discoveries as to the essential part played by insects in the transmission of protozoological parasites made by Smith and Kilbourne, Bruce, Ross; Reed, Carrol, and Agramonte, regarding the transmission of Texas fever, nagana, sleeping sickness, malaria of birds and animals, and yellow fever respectively, further than to point out that it was these researches which focussed attention upon the possibility of bacterial diseases being conveyed by a similar agency. In the latter case the insect plays a less essential part, and no particular phase in the life-history of the parasite takes place within it. I have accordingly, following a suggestion of my friend, Colonel Alcock, employed the term "porters" to describe this passive rôle of insects in the spread of contagion.

HOUSE-FLIES.

A deal of attention has been paid to flies lately in view of their possible influence in the dissemination of infection, more particularly in the case of such diseases as cholera, typhoid, and infantile diarrhoea, in which the infective agent escapes from the intestine and new infections are taken in by the mouth.

The first question is—Can the fly convey infection? Before referring to the numerous experiments which have afforded an answer, I will briefly refer to those points in the life-history, structure and habits of the house-fly which are of assistance in appreciating how it may play such a rôle. These subjects have been submitted to careful

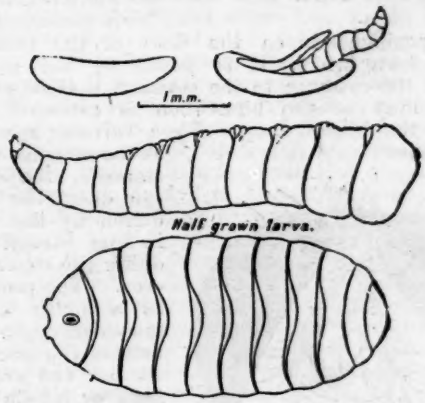

Fig. 1.

inquiry during the last few years, particularly in America and this country, and thanks to the observations of Lowne (1890), Howard (1912), Newstead (1907–9), Griffith (1908), Hewitt (1910), and Graham Smith (1910), we are now well acquainted with this insect, intimate knowledge of which was, until recently, curiously lacking.

The female fly lays about 120 eggs at each laying, and may produce four broods. Under ordinary conditions the eggs are mostly laid on horse, pig, or cow manure, but the excreta of almost any animal, or other fermenting refuse, suffices. The eggs are sausage-shaped with one end sharp, glistening white in colour, and about 1.5 mm. in length and 0.3 mm. in their greatest diameter. The eggs hatch in from three days to eight hours, according as the temperature ranges from 50° F. to 80° F. The larva is a little, active grub 2 mm. long, with a sharp anterior and blunt posterior end (Fig. 1). The larval stage lasts five days to

three weeks, according to temperature. At the time of pupation the grub is 6 to 9 mm. in length. Pupation lasts five days to a month, according to temperature. Thus the whole cycle from laying of egg to emergence of the fly occupies ten days to two months, according as the weather be warm or cold. Shortly after emergence from the chrysalis the young fly spreads its wings, which soon harden, and flies away in search of food. The young female is ready to lay its first batch of eggs in about ten days, or even sooner in warm weather.* During winter a few flies survive in warm and secluded places. In the spring these start the next year's supply. The possible progeny of one female fly from April to September have been estimated at 10^{18}. Howard, of the United States Department of Agriculture, estimates that in forty days the descendants of one fly might number 12 million, or 800 lb. weight.

The only points in the structure of the fly it is essential to direct your attention to are the legs and feet and the general arrangement of the alimentary apparatus. These will be sufficiently obvious from the diagrams (Figs. 2 and 3). Please note that the feet are covered with minute hairs. The latter are, indeed, more numerous and finer than in the diagram, and extremely fine ones are also placed upon the pads (these are stated to secrete a sticky substance, by means of which the fly grips), the basal part of the claws, and the distal stiff hair which projects from the end of the last joint of the tarsus. Each leg is like a minute paint brush, which is applied to the surface of whatever it rests upon. When this is water the hairs do not appear to be wetted.

Fig. 2.

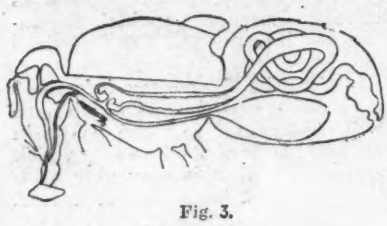

Fig. 3.

The essential parts of the alimentary canal are a gullet, stomach, crop, intestine and rectum. (See Fig. 3.) The gullet is prolonged to a minute opening between the flaps of the proboscis, halfway down which it is joined by the salivary duct. At the entrance to the stomach it is bifurcated, and one limb of the bifurcation is extended backwards to the bilobed crop. By a valvular apparatus at the entrance to the stomach, the insect can direct the liquid driven by the pump in its trunk into either the stomach or crop. The proboscis is a highly elastic muscular organ with universal movement. At the end are two flaps or labella (only one of which is shown), which it can open out like the leaves of a book, and apply the medial surfaces to the material it feeds upon. From the middle line or hinge minute chitinous channels pass outwards to the margin. These are seen in the diagram of the front view of the head of a fly (Fig. 4) in which the labella are shown opened out and facing forwards. These tubular structures are strengthened at frequent intervals by chitinous rings like a trachea, but are not complete tubes, being open to the surface by a minute linear channel with lateral bays in it. At the base of the trunk a number of muscle fibres are attached to the gullet by the peristaltic contraction of which fluid is pumped up from the mouth and propelled into the stomach or crop. The structural arrangement of the flaps of the trunk acts as a filter. Graham Smith (1911) is of opinion that solid objects larger than 0.006 mm. seldom pass into the gullet. According to Nicoll (1911) the ova of such tapeworms as do not exceed 0.035 mm. in their smallest diameter may be swallowed. These must therefore get into the mouth direct. When feeding on a liquid, the fly applies the labella to the surface, and sucks the liquid through the "strainer" first of all into the crop. When this is full some goes into the stomach. In the case of solid material such as sugar, dried blood or sputum, the insect must first dissolve the material. This is done by pouring saliva upon it or more generally by regurgitating some of the contents of the crop (Graham Smith, 1910).

Fig. 4.

Graham Smith (1910), by feeding experiments with coloured syrup, found that the meal was first taken into the crop, and subsequently transferred to the stomach at leisure. The fly could, however, first fill its crop and then its stomach. In a quarter of an hour the meal had passed on to the upper third of the intestine, and in a warm incubator at 37° C. reached the rectum within an hour. The fly seems to keep some of the fluid in its crop for days.

A well-fed fly deposits faeces abundantly. Graham Smith (1910) noticed flies to do this ten times in the first hour after feeding. A curious habit of flies, to which, so far as I know, attention was first drawn by Graham Smith, is the regurgitation of the contents of their crops. This has already been referred to as a means by which they are enabled to feed upon dry material soluble in water. They do this very frequently when walking over a clean glass, possibly with the idea of extracting nourishment from it. A fly, after a good meal, may often be seen blowing fluid bubbles from its trunk and sucking them in again, as in the diagram (Fig. 5), perhaps for practice.

Fig. 5.

From the above account it is clear that there are *a priori* reasons for suspecting the fly of carrying bacterial infection. Born in a dunghill, it spends its days flitting between the sugar basin, milk pan, and any faecal matter available. Its hairy, probably sticky, feet and the habit of regurgitating the contents of the crop and defaecating at frequent intervals suggests it to be an excellent inoculating agent for any bacteria it may pick up, in the satisfaction of its unsavoury tastes.

That it does, indeed, operate in this way has been abundantly demonstrated. Flies which have wandered over cultures of organisms and afterwards been allowed to walk upon sterile agar plates leave a rich crop of germs as their footprints, which can be demonstrated by subsequent incubation. Castellani (1907) transferred yaws to monkeys in an analogous way.

The carriage of infection by the alimentary canal and its deposition by regurgitation or faeces has also been shown over and over again—Grassi (1883), Maddox (1885), Alessi (1888), Celli (1888), Sawtchenko (1892), Uffelmann (1892), Yersin (1894), Firth and Horrocks (1902), Manning (1902), Hayward (1904), Lord (1904), Chantemesse (1905), Buchanan (1907).

These modes are probably more important than the carriage of bacteria upon the exterior. Many pathogenic bacteria would soon die from desiccation on the appendages of the insect, and, at any rate, the number so conveyed is small compared to those contained in its crop and intestine.

Carriage within is certainly more lasting, for Graham Smith (1910), to whom we are indebted for the most

*No doubt the cycle may be shorter or much longer under a wider range of temperature than that from which these records have been taken.

thorough investigation of this subject, isolated typhoid and other bacilli from the intestinal contents of flies six days after feeding on material containing the organism under test. The faeces ceased to afford growths after two days when typhoid bacilli were the infecting organism used, but with a more robust organism, such as anthrax, which can protect itself from the effects of drying, the time was much longer.

The table below, taken from Dr. Graham Smith's report, summarizes the result of his experiments on the length of time after which various bacilli can be recovered from the outside and inside of flies fed on infected material. As the author is careful to point out, in these experiments gross infection was produced by feeding upon pure cultures, and they do not do more than indicate the duration of life of various pathogenic bacteria under favourable conditions.

Table showing the Longest Period after which Organisms were Recovered from Flies Fed on Cultures (Graham Smith).

Organism.	Legs.	Wings.	Head.	Crop.	Gut.	Faeces.
B. typhosus	—	—	—	—	6 days	2 days
B. enteritidis	7 days	—	7 days	8 days	7 days	—
B. tuberculosis (culture)	—	—	—	3 days	16 days	13 days
B. tuberculosis (sputum)	—	—	—	—	7 days	5 days
Yeast	2½ hrs.	2½ hrs.	2½ hrs.	2 days	3 days	2 days
B. diphtheriae	5 hrs.	5 hrs.	5 days	7 days	5 days	2 days
B. anthracis (no spores)	2 days	—	4 days	5 days	3 days	2 days
B. cholerae	30 hrs.	5 hrs.	5 hrs.	2 days	2 days	30 hrs.
B. prodigiosus	8 days	12 hrs.	11 days	5 days	17 days	6 days
Anthrax spores... ...	20 days	20 days	20 days	13 days	20 days	13 days

Cao (1906), Bacot (1911), Ledingham (1911), and Graham Smith (1911) have further shown that in the case of larvae fed on material infected with various organisms, *B. pyocyaneus*, *B. typhosus*, and *B. anthracis* respectively, the infection may be carried through the chrysalis stage and recovered from the contents of the intestine of the fly after its emergence. Fortunately, however, according to Ledingham, *B. typhosus* leads a precarious existence in competition with the natural bacterial flora of the larvae and pupae.

There are numerous recorded instances in which the pathogenic organisms of cholera, typhoid, phthisis, anthrax, and plague have been recovered from the interior or dejections of flies which have been captured in the immediate neighbourhood of cases of the disease or, in the last two cases, of carcasses of animals dead of the disease. Cholera vibrios were isolated from wild flies under these circumstances by Tizzoni and Cattani (1886), Simmons (1892), Tsuzuki (1904); typhoid bacilli by Hamilton (1903), Ficker (1903), Faichnie (on seven occasions) (1909), Bertarelli (1910), and Cochrane (1912); tubercle bacilli by Spillmann and Haushalter (1886), Hofmann (1888), Lord (1904), Hayward (1904), Cobb (1905), and Buchanan (1907); anthrax by Cao, and plague bacilli by Yersin (1894) and Hunter (1906).

The spread of ophthalmia in hot countries has, on good grounds, been attributed to the agency of flies in carrying the Koch-Weeks bacillus and the gonococcus from eye to eye—Budd (1862), Laveran (1880), Howe (1888), Axenfeld (1907). The seasonal and local prevalence of ophthalmia corresponds with that of flies, and a visit to Egypt during the fly season is sufficient to convince one that this must happen.

Are Flies the Determining Factor in Epidemics?

Although, however, flies may be discovered with the infection of a number of diseases in or upon them, and by their habits may not unlikely serve as agents in transferring infection, it by no means follows that they are the determining factor of epidemicity in the case of cholera, typhoid, dysentery, etc. In the case of fulminating epidemics of typhoid and cholera associated with an infected water supply this is obviously not so.

Flies in Relation to Typhoid Fever.

The conclusion that fly transmission is the principal means of spread of typhoid in military encampments and stations has been arrived at by a number of competent observers, amongst them Veeder (1898), Reed, Vaughan, and Shakespeare (1900), in their report on the origin and spread of typhoid fever in the United States military camps during the Spanish war of 1898, and by Tooth and Calverley (1901), Smith (1903), Purdy (1909), and Wanhill (quoted by Purdy).

The sanitary arrangements of a military camp are not exactly those of the Ritz Hotel, and the prevalence of flies in late summer can hardly be appreciated by those who have not had the experience. The conditions are most favourable for transmission by flies. The circumstantial evidence against them is so strong as to have left no doubt in the mind of the American Commission that these insects play a large share in disseminating infection, for page 28 of their general statement and conclusions reads thus: "Flies undoubtedly served as carriers of infection."

An estimate of the fly population and its relation to admissions of enteric was made by Ainsworth (1909) in Poona. The observations showed that enteric had a very definite season, commencing at the end of the hot dry weather with the onset of the rains, and reaching a maximum a few weeks after their cessation. The abundance of flies increased also soon after the beginning of the rains, but earlier than the admissions for enteric, and, speaking generally, the fly curve antedated that for enteric cases by about one month.

Taking into account the incubation period for the disease, this fact is in agreement with the view of a causal relation between cases and flies in Poona. The number of observations is unfortunately small.

In considering the possible influence of flies in the spread of typhoid in a well sewered city, it must be remembered that the opportunities for flies to pick up the infection are vastly less than under the conditions of a military encampment, or even in rural surroundings. In large cities, no doubt, dejecta and urine from patients may be left available to flies, but the bulk goes promptly into the main drain.

The discovery, in cities like London and Manchester, of the majority of cases of typhoid, and their removal to hospital before the period when the excreta contain large numbers of bacilli, must also greatly reduce the liability to the dissemination of the disease by flies. The typhoid-carriers, however, remain.

Dr. Niven (1910) has made observations upon the prevalence of flies in Manchester since 1904. Twelve to thirty-four bell traps were served out to the inhabitants of small dwellings in different quarters of the town and the catch collected every few days by his inspector. Data have thus been obtained which are sufficient to afford information as to the general time relationship between fly prevalence and the incidence both of enteric and infantile diarrhoea.

It must be remembered, however, that the number of flies entrapped in twelve or seventeen rooms indicates only in a general way the prevalence of these insects in a large city, so that too much significance must not be attached to other than the main features of the record.

On pages 62 to 69 of Dr. Niven's paper are plotted the numbers of cases of enteric (commencement) and the diarrhoea deaths for each week of the year from 1891 to 1908. Whilst the latter show well-marked rises during some ten to twelve weeks of the summer, the seasonal prevalence of the latter is not striking. Speaking generally, the typhoid season in Manchester is considerably later than the diarrhoea season, and the enteric cases reach a maximum in late autumn, at a time when most of the flies have already disappeared.

The census of flies commenced in 1904, and, for the years 1904–9, coincides fairly well in time with the diarrhoea deaths if these are antedated ten days to allow for the average period ensuing between commencement of the disease and death.

If we assume that the same close time relation existed throughout, the observations taken as a whole seem to me to lend little support to the view that typhoid in Manchester is to any material extent dependent upon transmission by flies.

The time relation of fly prevalence and typhoid cases was also studied in Washington during 1908 by Rosenau, Lumsden and Kartle (1909) in collaboration with Howard, Entomologist to the United States Department of Agriculture.

In Washington in 1908 the flies (*Musca domestica*) appeared in considerable numbers in April, and reached a maximum in July. During August and September they steadily diminished to about one-third, and rose again in October. The relation of the two curves was not such as to suggest that flies play much of a rôle in the transmission of typhoid fever in Washington.

In a subsequent report on typhoid fever in Washington Lennoden and Anderson (1911), from an analysis of the incidence of typhoid upon the population using privies or yard closets, discovered that the greater prevalence of typhoid among these persons during the summer coincided with the fly season.

Fig. 6 shows the time relation of fly prevalence to enteric fever notifications for London during 1908. The

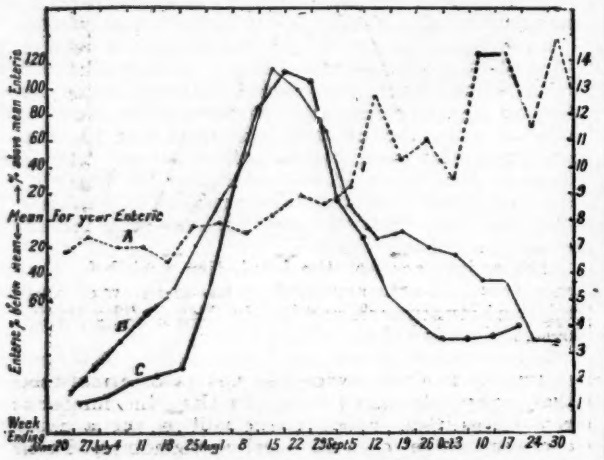
Enteric % below mean
% above mean Enteric
Mean for year Enteric
A
B
C
Week Ending
June 20 27 July 4 11 18 25 Aug 1 8 15 22 29 Sept 5 12 19 26 Oct 3 10 17 24 30

Fig. 6.—Relation in point of time between prevalence of flies, diarrhœa mortality, and cases of enteric fever, London, 1908. The deaths from diarrhœa have been antedated ten days; the cases of enteric notified have been antedated three weeks. A, Enteric cases. B, Flies caught per day ÷ 9,600. C, Diarrhœa deaths per week ÷ 20

data are taken from Dr. Hamer's (1909) observations giving the mean number of flies caught each day in 141 situations grouped around 9 centres. The observations being upon a larger scale, the sampling was presumably more representative of the fly population than the records in Manchester. I have antedated the records of the number of cases of enteric fever by three weeks—ten days for average lapse of time prior to notification, and eleven days for average incubation period. It will be seen that the number of cases of enteric fever rises steadily during the fly season, but that the rise continues independent of the fact that flies are rapidly diminishing, and reaches a maximum at a time when they have retired for the winter.

As regards seasonal incidence of typhoid fever, 1908 is fairly typical of what has occurred in London during the last twenty years. As the weather became warmer, the number of infections with typhoid increased, and was not cut short by the fall in temperature usually occurring in September, but reached a maximum in October and November—that is, at a time when there are hardly any flies about. Whether, as Dr. Niven believes, increased fly prevalence is a factor in determining the increasing incidence in Manchester and London at the end of the summer, it seems to me impossible to say, but, taking into account the circumstantial evidence against the fly, this may not unlikely be the case. It is clear, however, that other causes are operative, and that epidemics of typhoid occur in these cities in the absence of flies.

This is in striking contrast to the observations in military camps both during the Spanish-American war and the Boer war. In both these instances, with the onset of cooler weather and the first frosty nights, the nuisance from flies was at once relieved, and the cases of enteric diminished shortly afterwards.

Flies in Relation to Infantile Diarrhœa.

As the infective agent of infantile diarrhœa has not been identified, no direct evidence that flies do, on occasion, convey the germs of this disease is available. It is probable that more than one etiological factor for infantile diarrhœa exists. Different organisms have been found to be particularly prevalent in the stools in different epidemics in various localities. In America some of the epidemics have been associated with the presence of a dysentery bacillus (Flexner's bacillus) in the stools, Wollstein (1903), Park (1903), Duval and Schorer (1903), Cordes (1903), Weaver and Tunnicliffe (1905). In other epidemics (in America) no dysentery bacilli were found, and an epidemic in Vienna investigated by Jehle and Charleton (1905) was not found to be associated with dysentery bacilli. Metchnikoff (1909) is of opinion that *B. vulgare* is the causative organism.

A search for evidence of a causal agent was conducted on a large scale by Morgan (1906, 1907, 1909) and his colleagues of the Lister Institute during the epidemic in London in the years 1905, 1906, 1907, and 1908. The search was restricted to aërobic bacilli which neither fermented lactose nor liquefied gelatin—that is, to a group which includes the dysentery, typhoid and paratyphoid, and Gaertner bacilli. Stools and autopsy material were examined from several hundred cases of the disease and from other children. A very large number of organisms were isolated and examined, but the only one whose prevalence was found to be related to infantile diarrhœa was a non-motile bacillus of this group, which was peculiar in that it failed to ferment mannite and is now generally known as Morgan's bacillus No. 1. This organism was not infrequently recovered from the organs in fatal cases and produced diarrhœa when fed to monkeys and young rats. It was rarely encountered in children not suffering from acute diarrhœa.

Morgan's bacillus has been found in flies captured from houses in which cases of diarrhœa occurred, but until its causal relation to the human disease is proven too much significance cannot be attributed to these observations.

We are therefore entirely dependent upon epidemiological facts in testing whether the belief in the dominant influence of the house-fly upon the occurrence of epidemics of infantile diarrhœa, a view which has been warmly exposed by many excellent observers, is valid.

THE RELATIONS IN TIME BETWEEN CASES OF DIARRHŒA AND PREVALENCE OF FLIES.

Unlike the case of typhoid, which has just been discussed, epidemics of infantile diarrhœa in towns exhibit a close time-relation with fly prevalence. Epidemic diarrhœa of children does not occur except during that season of the year when flies are abundant and active, and, as will be seen on studying the charts, the relation between

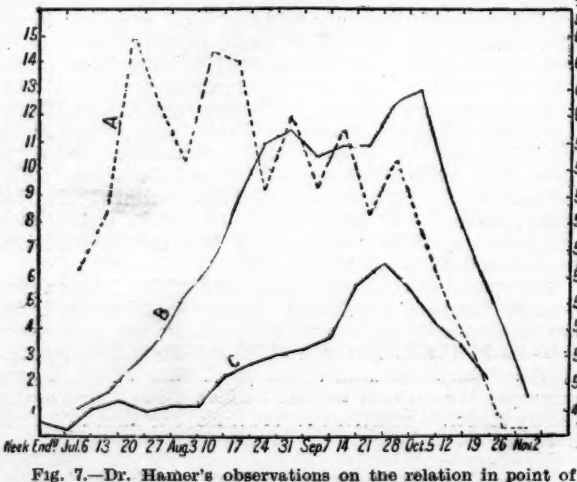

Fig. 7.—Dr. Hamer's observations on the relation in point of time between prevalence of flies and diarrhœa mortality in London, 1907 (153 fly-collecting centres). The deaths from diarrhœa have been antedated ten days. A, Weekly mean atmospheric temperature. B, Number of flies caught per day ÷ 10,000. C, Diarrhœa deaths per week ÷ 20.

fly population and diarrhœa cases is so striking as to suggest something more than a mere accidental dependence upon the same phenomena.

The charts, Figs. 7, 8, 9, 10, and 11, show the relation of diarrhœa and fly-prevalence in time. The three first are derived from Dr. Hamer's observations in London in 1907, 1908, and 1909. Figs. 10 and 11 are constructed from Dr. Niven's (1910) observations in Manchester in 1904 and

1906. I have selected these particular years from the Manchester data because they represent what happened in a warm summer in which the number of cases was considerable.

The charts have undergone some manipulation at my hands. I have antedated the deaths by ten days, which, according to Dr. Niven's observations, represents the average period intervening between onset and death. They ought no doubt to be antedated further to include the incubation period, but I have no data to determine what this should be. In the case of Dr.

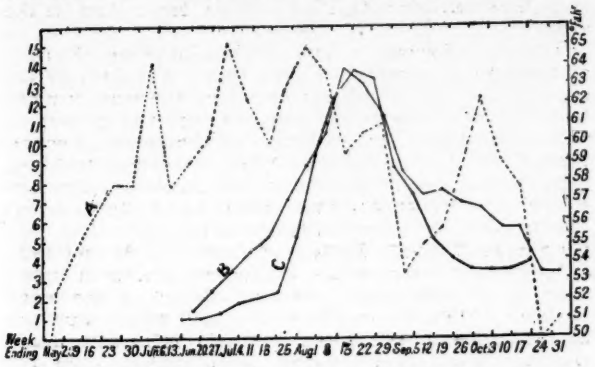

Fig. 8.—Dr. Hamer's observations on the relation in point of time between prevalence of flies and diarrhoea mortality in London, 1908. The deaths from diarrhoea have been antedated ten days. A, Mean atmospheric temperature for the week. B, Number of flies caught per week ÷ 9,600. C, Diarrhoea deaths per week ÷ 20.

Hamer's observations, I have summed his tri-weekly observations and plotted the fly-catch for the whole week. In this way I have eliminated most of the irregularities and obtained smoother curves. I have also added the weekly mean temperature for London for the period comprised by Dr. Hamer's observations, and (in Fig. 8) for about two months previously.

The procedure adopted by Drs. Niven and Hamer to obtain data regarding fly prevalence was common in all cases. The number of flies caught on sticky paper, or entrapped in a series of domestic dwellings, generally in

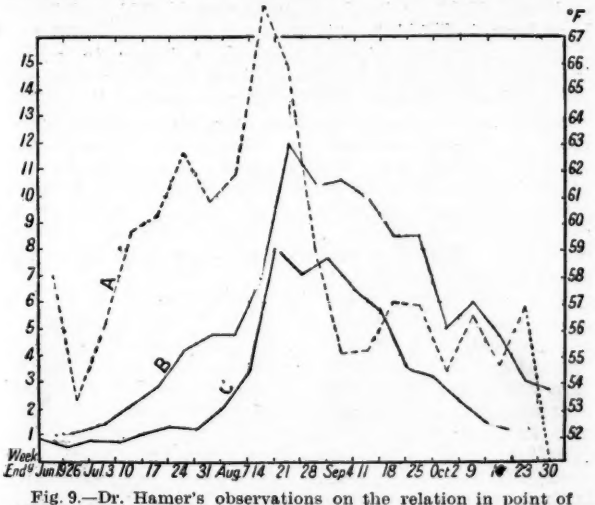

Fig. 9.—Dr. Hamer's observations on the relation in point of time between prevalence of flies and diarrhoea deaths, London, 19 9 (thirty-five fly-collecting stations). The deaths have been antedated ten days. A, Weekly mean temperature of atmosphere. B, Number of flies caught daily ÷ 2,500 (weekly mean) × 4. C, Diarrhoea deaths weekly ÷ 20.

neighbourhoods inhabited by poor people, were recorded every two or three days. This estimate of the prevalence of flies, together with the deaths from diarrhoea, were then plotted as ordinates against weeks as abscissa. Dr. Niven's observations extend over five years, and refer to several districts in Manchester. Dr. Hamer's organization for the capture of flies was on a larger scale, and his observations were made at various parts of London during 1907 and 1908 and 1909, mostly in the neighbourhood of refuse and manure depôts, where flies are bred. Another excellent series of observations was made by Dr. Dudfield (1912) in Paddington during the summer of 1911. It concerns a smaller number of cases, but this enabled a more intensive study of many factors contributing to the epidemic to be made.

The first point brought out by all these observations is the dependence of both the number of flies and the epidemic upon the cumulative effect of previous warm weather—as, for instance, is indicated by the earth temperature 4 ft. below the surface, a fact to which attention was first drawn by Ballard (1889). The curve for flies rises first, followed soon by that for cases. The latter is longer in getting going; this is particularly marked in the

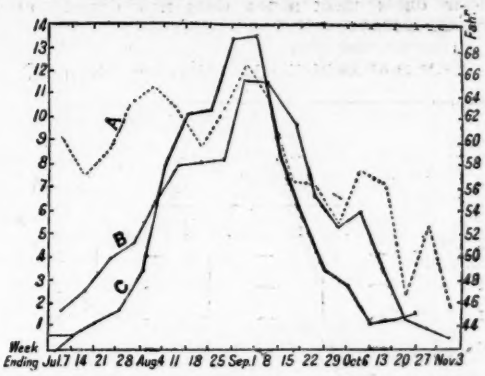

Fig. 10.—Dr. Niven's observations in Manchester, 1906. The deaths from diarrhoea are antedated ten days. A, Mean weekly temperature. B, Number of flies caught ÷ 2.000. C, Deaths from diarrhoea.

cool summer of 1907. Both flies and cases reach their maxima about the same time. In 1907 the number of cases is diminishing whilst flies are still on the increase. In 1908 and 1909 both curves decline together, but that for flies more gradually.

A notable feature of the curve is that the same fly population is accompanied by a rise in the number of cases in early August and with a fall in early September. This fact has been quite properly emphasized by the critics of those advocating the importance of flies.

If we propose to regard the time relations of fly prevalence and diarrhoea cases as more than an interesting

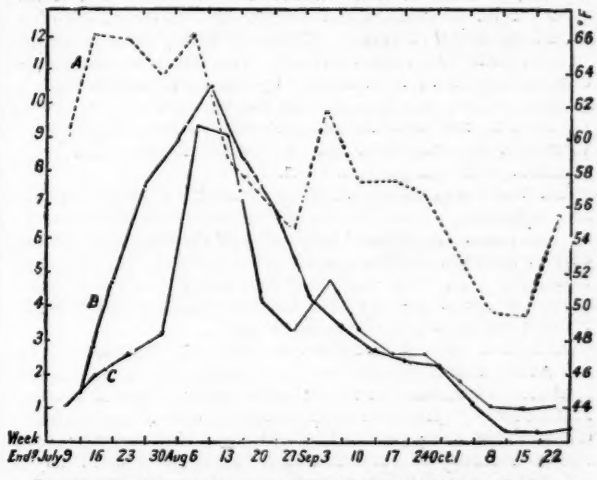

Fig. 11.—Dr. Niven's observations, Manchester, 1904. The deaths from diarrhoea have been antedated ten days. A, Mean weekly temperature. B, Deaths from diarrhoea ÷ 10. C, Number of flies caught ÷ 2,000.

coincidence, we must find a satisfactory explanation for the above facts. Let us consider for a moment how the dependence of diarrhoea epidemics upon the accumulated effect of temperature might be explained.

The reason why the number of flies should be dependent upon this factor is obviously because the generation time (cycle from egg to egg) is dependent on temperature and requires three weeks or upwards in our climate. Months of warm weather are therefore required to produce any multitude of flies from the few surviving the winter.

Why the epidemic should exhibit this dependence is not obvious. Not knowing the etiology of diarrhoea, we must assume some sort of infective agent. From analogy with

typhoid, cholera, acute food poisoning, and dysentery, we will suppose that we have to deal with some form of bacterium with which our aliments might become infected. In this case, would the dose of infection be dependent upon the accumulated effect of temperature during the previous three months? Assuredly not. The generation time of bacteria is so short—in the case of *Bacillus coli* it is one hour at 20° C. and half an hour at 30° C.—that the number present at any moment is to all intents and purposes dependent only upon the mean temperature during the last few days. To take a homely illustration, whether one's milk sours does not depend upon the temperature last month but last night.

Rate of Multiplication (Maximum Observed).

Days.	House-fly, August-September, 1907. Brighton.			*B. coli communis*, 20° C.
0	1 (Female).			1
	1st Gen.	2nd Gen.	3rd Gen.	
1	—	—	—	10^7 (10,000,000)
2	—	—	—	10^{14}
5	—	—	—	10^{35}
10	—	—	—	10^{70}
20	100	—	—	
30	100	—	—	10^{720}
40	100	5,000	—	
50	100	5,000	—	
60	—	5,000	125,000	10^{1440}
	Total		150,000	

In the accompanying table I have set out the rate of multiplication of *B. coli* at 20° C. and that of flies inside a house during a summer in England. You will observe that one female fly might under these conditions possess 150,000 progeny in sixty days, but the bacteria derived from one organism become innumerable in two days. Unless, therefore, the effect of two months' summer weather be to change the nature of the organism so as to enhance its virulence, it is quite impossible to account for this striking characteristic of the epidemic by chance contamination of food supply by pathogenic bacteria. In a state of innocence regarding the etiology of the disease, we have no means of knowing whether any such change in virulence occurs under the influence of continued warm weather, but it is just conceivable.

On the other hand, we have excellent *a priori* reasons for supposing that flies could transmit the infective agent of diarrhoea. Any one familiar with the domestic *ménage* of the average working man on a hot summer day, with the baby sick with diarrhoea and other small children to care for, must realize that the opportunities afforded for fly transmission are adequate enough.

It seems to me, therefore, that before abandoning the view that diarrhoea is a bacterial infection, or making the gratuitous assumption that a long spell of warm weather is necessary to awaken pathogenicity, one must carefully examine the adequacy of the view that the dependence of the epidemic on accumulated temperature is to be accounted for by the operation of this factor upon the means of transmission.

We will now see whether this interpretation fits the rest of the facts.

The greater steepness of the rise of the diarrhoea curve is consistent with this view, for at first the opportunities for a fly to transmit the infection are small, but as the cases increase opportunities increase likewise.

As has been pointed out by Hamer and Peters (loc. cit.), if variation in the number of fly transmitters of an infective agent existing in the stools of patients were the sole factors concerned, the curve for diarrhoea cases should shoot up beyond and come down later and more slowly than that representing the number of flies, because the opportunities afforded to flies to pick up the infective agent are increasing *pari passu* with the development of the epidemic. This is, however, not what happens. On the contrary, the epidemic is arrested while flies are numerous and declines more quickly than the fly population. We are therefore confronted with the question, What arrests the rise in the epidemic wave?

Exhaustion of susceptible material has been suggested. This obviously plays a part in every epidemic, and the observations of Peters (1910) in Mansfield, where, under similar conditions, in one section of the town the epidemic was nearly finished whilst in another it was beginning, afford a demonstration that it is a factor of importance. As, however, small epidemics in cool summers exhibit the same feature, this cannot be entirely responsible for the arrest.

Another factor which must be taken into account is the atmospheric temperature at the time. A glance at the charts (Figs. 7, 8, 9, 10, 11), in which the weekly mean temperature is also shown, suggests that this is playing an important part, for the decline of the epidemic occurs immediately upon a considerable drop in mean temperature, and a diminution of fly prevalence often follows shortly afterwards. The influence of atmospheric temperature appears to be more marked upon the number of infections than upon the number of flies. Whereas in London, 1908 and 1909, following shortly upon the colder weather, both curves drop in a remarkably similar fashion; in the small epidemic of 1907 the number of flies still remains up and even increasing, whilst the epidemic is rapidly disappearing. The same general facts emerge from the Manchester observations. We might invoke the assistance of coincident exhaustion of susceptible material or diminished activity of flies, although still numerically sufficient, in explanation of this. They may indeed be operative, but I think that a completely satisfactory interpretation of the above facts, and also of the fact that, with a given number of flies, the epidemic wave is ascending during the early weeks of an epidemic and subsiding a month or six weeks later, is afforded by taking into account the influence of the variations in atmospheric temperature upon the rate of multiplication of the infective agent. Regard for a moment (Fig. 8) the chart expressing the results of Dr. Hamer's observations in London, 1908. Take the weeks ending August 25th and September 12th, in which approximately the same number of flies were caught. The mean temperature for the former week was 62.6° F.; for the latter it was 54.8° F., and it had been down to 53° F.

The atmospheric temperature is a factor to which insufficient attention has been given, since the origin of the epidemic showed but small relation to it. It is capable, however, of explaining why the epidemic wave rises in August and falls in September, although the number of flies may be the same. Assuming, for the sake of argument, some form of bacterial infection is the etiological factor in infantile diarrhoea, it would be in accordance with general experience to suppose that the chance of infection is determined by the quantity of the infecting agent imbibed.

This will depend upon the multiplication which has taken place in the infected medium prior to ingestion; this, in turn, is a function of the temperature at which the milk or other foodstuff has been kept. The temperature coefficient of bacterial multiplication is not higher than that governing ordinary chemical processes—namely, two to three times for 10° C.—but as bacterial multiplication proceeds logarithmically a comparatively small change in rate is sufficient to produce a large difference in the number of organisms contained in, say, an infected milk, if an interval of some hours elapses between inoculation and drinking. Thus if N *Bacilli coli* be inoculated in milk at 60° F. and 70° F. respectively, the number after twelve hours will be 126 N and 4,000 N respectively.*

We have, then, two factors which may contribute in varying degree to the decline of the epidemic.

1. A fall in temperature diminishing (*a*) the activity and number of supposed transmitters, and (*b*) the dose of infection which the child ingests owing to the effect upon the rate of multiplication of the infective agent.

2. The exhaustion of the more susceptible individuals. Sometimes one, sometimes another of the above factors appears to predominate. For instance, we have the fact to

* For the observations on which this calculation is based, see Dr. Janet Lane-Claypon's paper, "Multiplication of Bacteria and the Influence of Temperature thereon," *Journ. of Hygiene*, ix (1909), p. 239.

which attention was drawn by Peters (1909), that in a much hotter climate, such as Australia, the epidemic often declines, notwithstanding the fact that the temperature may continue to rise for several weeks. In Fig. 12 below I have plotted from a paper by Stawell (1899) the monthly mean temperature and monthly diarrhoea mortality in Melbourne for the years 1895–96. In this city, where winter and summer succeed one another without the long intervening periods we have here, the epidemic lasts for six months instead of six weeks. It will be noticed that in 1895 the temperature continued to mount for two months after the summit of the epidemic. In Melbourne the decline cannot be due to diminished dose of the poison owing to slower rate of bacterial growth, but must be attributed to exhaustion of susceptible individuals or to the effect upon the presumed transmitting agents, the flies. In

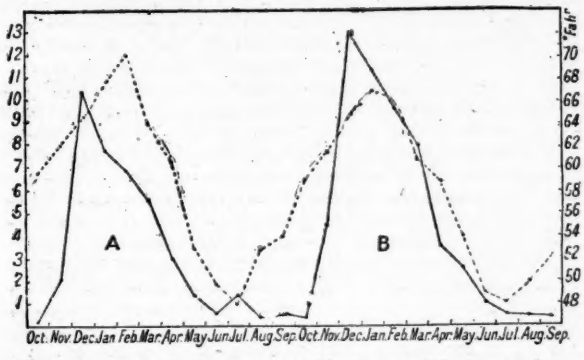

Fig. 12.—Diarrhoea mortality and mean monthly temperature, Melbourne, Australia. A, Summer, 1895–6. B, Summer, 1896–7.

the absence of definite quantitative observations I cannot speak dogmatically, but, as far as my memory serves me, I think the number of flies diminishes in Melbourne, as in Washington, during the hotter weather. A monthly mean temperature of 70° in Melbourne indicates that there were a good many days with a maximum shade temperature of over 100° F., which in that locality is associated with extremely dry north winds. Such meteorological conditions are very fatal to flies both in larval and imago stage. On hot-wind days flies have to seek shelter out of the sun, or they rapidly become desiccated. For the same reason they succumb on an exposed window pane, and large numbers of dead flies accumulate on the window frame.

The Relation of Fly Prevalence and Diarrhoea on Space.

No quantitative observations upon the relation between number of flies and the distribution of cases of infantile diarrhoea have, as far as I am aware, been made, but I may mention a few impressions by different observers for what they are worth. Nash (1909), who, whilst medical officer of health for Southend, made, during 1904, spot maps of the epidemic there, says: "The great majority of the deaths from diarrhoea were shown to have occurred in streets in proximity to brickfields, in which were deposited daily some thirty tons of fresh house refuse, which bred incalculable numbers of flies" directly the meteorological or seasonable conditions became favourable for their development.

Dr. Niven (1910, p. 45) is of opinion that the close correspondence between flies and cases of fatal diarrhoea receives a general support from the diarrhoea history of sanitary subdivisions of Manchester, and that the few facts available for the study of correspondence of flies and fatal cases in different subdivisions (Manchester) in the course of the same year also lends support. In his view no other explanation even approximately meets the case.

Peters (1910), in his very exhaustive study of the epidemic in Mansfield in 1908, paid especial attention to the possible part played by flies. From an analysis of his observations, he, I think justly, came to the conclusion that the evidence pointed to the fact that whatever part they might play as carriers from an infected household to a neighbour, flies did not bring infection with them from the manure heaps where they had been bred.

Peters constantly noted that the individual seemed to be a source of infection to the neighbours adjacent to the house within the precincts of which his excreta, if infectious, would most likely be deposited. This, he points out, could be most readily explained by the supposition that flies were the agents of dissemination of the infection, but from the frequent want of correspondence in different localities between numbers of flies and amount of diarrhoea, although not negativing it, gave no support to this view.

I doubt very much whether any evidence of great value could be obtained upon this point. Even supposing it to be true that fly-carriage is of first importance, I should expect that, if all the facts were known, a much higher correlation would be discovered between diarrhoea and carelessness with regard to disposal of excreta and protection of food from the visitation of flies, than between diarrhoea and fly prevalence.

Many of the facts which I have brought forward merely indicate some form of infective agent and do not necessitate recourse to the hypothesis that carriage by flies dominates the situation. I would point out, however, that—

1. The fly-carrier hypothesis is the only one which offers a satisfactory interpretation of the extraordinary dependence of the epidemic upon the accumulated effect of temperature.

2. That it offers a ready explanation of the spread of infection to neighbouring children who have no direct personal contact with the patient.

3. That the peculiarities of the relation in time between fly prevalence and the epidemic in different localities are not inconsistent with the view that fly-carriage is essential to epidemicity. No other interpretation which is at present forthcoming is nearly so satisfactory, and it is at least worthy to guide in the meantime our efforts at prevention.

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THE Swiss Society for the Scientific Study of Tuberculosis will hold its first meeting at Lausanne on January 18th and 19th. The society has eighty-eight members.

BY way of promoting *esprit de corps* among those who are still nominally serving, or have served, in the civil medical departments of the West African Colonies, two dinners are annually held, one in the summer, one in the winter. The next winter gathering is to take place at the Grand Hotel, Charing Cross, on January 15th, its official title being the dinner of the West African Medical Staff. The honorary secretary is Dr. J. P. Fagan, 27, Scarsdale Villas, Kensington, to whom early application for tickets should be made.

An Address
ON
GALL STONES.*

BY
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ONE of the most interesting advances made in recent years by the intrepid surgeon into the dim territory of abdominal afflictions was that which disclosed to us the frequency, the symptoms, and the appropriate modes of treatment of cholelithiasis. In this direction, as in so many others, the new vision which has come from a study of the pathology of the living has compelled us to re-arrange our ideas and to adjust them in accordance with the different modes of examination which can now be conducted in all the various stages of this disease.

It is now a matter of general acceptance that gall stones are caused by an infection which, having its origin, or at least its refuge, in some part of the alimentary canal, reaches the liver either by way of the blood stream or ascends to it through the common bile duct. Lartigau has shown that the organisms carried to the liver by the portal vein are generally destroyed by the liver's action; but that when from any cause the number or the virulence of the micro-organisms is increased, some may well escape in the bile and find a lodgement within the gall bladder. As soon as any bacteria which have escaped with their lives from the liver reach the gall bladder they begin to act as a menace to the welfare of the patient. The economy, therefore, exerts the protective influence which it seems here also to possess. When a needle intrudes into the knee-joint it is covered over by a plastic exudation and converted into a "loose body." When a bullet is embedded in the soft parts, or in the chest or abdomen, it is wrapped up securely in a coating of fibrous tissue. When a hairpin or a catheter lies in the bladder it is surrounded by salts normally present in the urine, which crystallize out probably in an effort to render the intruder harmless. So in the gall bladder, when germs which have perhaps undergone the process of "clumping" find lodgement there, they are safely immured in a covering of salts, cholesterin in whole or in part, or bilirubin calcium, with the purpose, no doubt, of rendering them inert and of destroying them. Indeed, every gall stone is a tombstone erected to the evil memory of the germ that lies dead within it. Among the organisms which perish in this manner, the bacillus of typhoid, the colon bacillus, and the pneumococcus, which I have on several occasions recovered from the bile, appear to be the most frequent.

It is true that stones, as in cases of cirrhosis of the liver, may be formed within the intrahepatic or hepatic ducts. But such cases are of merely pathological importance. In all cases of cholelithiasis which come for surgical treatment it would appear to be quite certain that the stones have formed within the gall bladder. When calculi are found in the hepatic duct, the common bile duct or the ampulla of Vater, the gall bladder itself may be void of stones. Yet the stones which are removed bear clearly the traces of having been formed within the gall bladder, from which long ago or recently they have migrated. As soon as stones are once formed within the gall bladder symptoms begin to assert themselves In medicine fallacies die hard, but rarely is one so tenacious of life as that ancient one which expresses the view that in a great majority of cases gall stones do not give rise to symptoms. In all my experience I have only twice met with a case in which an attack of "hepatic colic" was the first indication of the presence of a stone. Indeed, in those rare cases in which the diagnosis admits of doubt, the presence or absence of what I have described as the "inaugural symptoms" of gall-stone disease may nearly decide the question. The description of these symptoms, which I gave some years ago, has been corroborated by other writers—Sherren, Mayo, and more recently by Grube and Graft in their little work on gall-stone disease (see also Rolleston, our first authority, *Diseases of Liver*, etc., second edition).

* Abstract of a paper read before the Halifax Medical Society.

By the great majority of patients the word "indigestion" is vaguely and variously used to indicate all the several forms of distress which are the forerunners of a crisis of acute biliary colic. The very great majority of medical writers, when dealing with the topic "indigestion" or "dyspepsia," assert that in a large proportion of such cases the symptom owes its origin to "functional" causes, and that it is not dependent upon any structural change in the abdominal organs. Again it is said, when the question of cholelithiasis is considered, that only a very small number of those patients who carry stones in the gall bladder suffer from troubles caused thereby. No one seems to have correlated the two statements, or to have shown how the error in one is explained by the error in the other. The truth is that a very large number of patients—probably, indeed, a large majority—who have suffered for years from "gastric" disorders have no organic disease in the organ impugned, but have a real structural disease in other parts, notably the gall bladder or the appendix. Nothing is more remarkable in connexion with the surgical investigation of dyspepsia than the progressive broadening of the organic bases upon which the clinical symptoms are found to be built. It is the stomach, whose sensibilities are tender, that cries out the warning when other organs are suffering attack.

The symptom "dyspepsia" or "gastralgia" may be due, it is now known, to structural diseases, not in the stomach alone, but also, indeed chiefly, in the gall bladder, duodenum, appendix, or any part of the intestinal canal.

The "inaugural symptoms" of gall stones may very briefly be recapitulated here. The patient complains of a fullness, weight, and distension, or oppression in the epigastrium coming on soon after meals, within half or three-quarters of an hour, relieved by belching, and dismissed almost on the instant by vomiting, elicited with remarkable constancy by certain articles of diet, especially those of a "greasy" nature, and dependent rather upon the quality than upon the quantity of the food. There is a sensation of great tightness, which if unrelieved may become acute pain, from which the patient obtains ease by bending the body forwards, by flexing the right thigh on the abdomen, or by loosening all garments which fit tightly to the waist. There is frequently great complaint of "acidity" or heartburn, and in the act of belching there may be sour or acid regurgitation. While the discomfort lasts the patient may notice a "catch" in his breath, and he finds, perhaps, that it is impossible to breathe deeply without feeling an acute stabbing pain at the right costal margin. There may be a feeling of faintness and nausea, and, rarely, vomiting may occur spontaneously. After a more than usually severe attack of "indigestion" the body and side may feel stiff for several days. A frequent and a very characteristic early symptom of cholelithiasis is the occurrence during an attack of indigestion of a slight sensation of chilliness, especially in the evenings after a meal. The patient may shiver for several minutes, and may hasten from the table to huddle over a fire. The sensation of "goose flesh" is often experienced, and several medical men upon whom I have operated have said that in the severer phase it was not unlike a very slight rigor, the chilly stage being quickly followed by one in which the body feels hot and the skin begins to act freely.

Such are the symptoms which may be present for months or even for years before a sudden and dramatic attack of acute pain, perhaps amounting to agony, occurs, as the result of a disarrangement of the stones, or of an attempt on the part of one stone to escape from the gall bladder. The cause of attacks of pain in gall stones is always primarily mechanical; inflammatory attacks, due to infection, are the results of the movements and impactions of the calculi. Among the commonest of all causes of attacks of "biliary colic" is the impaction of a stone in the "pelvis" of the gall bladder, close to or actually at the orifice of the cystic duct. The patency of the cystic duct is all-important. As Keith has said, the valves of Heister, made by an infolding of the mucosa in spiral form, are designed for the purpose of keeping the duct open. The gall bladder acts not as a reservoir of bile—it is too small for that purpose, holding only the amount of bile which can be excreted in an hour and a half or two hours—but as a controller or regulator of the steady supply delivered on demand into the duodenum. It is very essential, therefore, that the cystic duct should be kept open to the free flow of bile in and out of the gall bladder. So soon as this is arrested, so soon does pain begin. The symptoms caused by the impaction of a stone in the cystic duct are quite characteristic. There is probably a sense of gastric uneasiness, with flatulence, belching, and a sense of distension, as is so often the case in the cholelithic patient after meals. Quite suddenly, however, often with onset as instant as if he were stabbed, the patient is seized with the most acute pain, felt across the epigastrium, often more on one side than the other, and nearly always through to the back, near the tip of the right shoulder. The agony may be terrific, and the patient may reach the very limit of human endurance. He is infinitely restless, and in this differs from the rigid and motionless patient, who has suffered the perforation of a gastric or duodenal ulcer. He is moaning and moving without pause, pressing the body with one hand or both, or bending over a chair or clutching a hot bottle to the abdomen. He sweats and yet feels cold and clammy. He breathes with difficulty, owing to a spasm of the diaphragm, which, like the other abdominal muscles, is tightly contracted to form that firm muscular splint whose purpose it is to keep at rest and free from harm a lesion in need of protection. Nausea, and nearly always vomiting, occur, and vomiting may cause relief, probably by reason of the muscular relaxation which it induces. Very often the pain disappears with absolute abruptness. One moment the patient writhes in agony, the next he smiles in relief. The instant beginning and the instant cessation are characteristic of cystic duct obstruction—they never occur in any other form of gall-stone obstruction with anything like the same precision. The pain is almost always referred to the back, and Boas's sign can often be elicited in and after a seizure. If an attack last for some hours, the distended, tense, and tender gall bladder may be felt. It is often exquisitely sensitive, and may remain so for many days. The importance of tenderness along the lower border of the liver in cholelithiasis was first indicated by Naunyn, who wrote that, in patients who have recently suffered from an attack of colic, "pain is induced when, during a deep inspiration, pressure is made with the hand as far upwards as possible beneath the right costal border. At the moment when the liver impinges upon the tips of the fingers the patient experiences a deep-seated pain."

Dr. J. B. Murphy, one of the greatest of surgeons in a country prolific in the production of surgeons of the first rank, has emphasized the same truth: "The most characteristic and constant sign of gall-bladder hypersensitiveness is the inability of the patient to take a full inspiration when the physician's fingers are hooked up deep beneath the right costal arch below the hepatic margin. The diaphragm forces the liver down until the sensitive gall bladder suddenly reaches the examining fingers, when the inspiration suddenly ceases, as though it had been shut off. I have never found this sign absent in a case of calculus or in infectious cases of gall bladder or duct."

My friend, Mr. Jordan Lloyd, many years ago, called attention to the importance, as a diagnostic sign in cases of renal calculus, of a "jab" suddenly made with the thumb in the ilio-costal space. If a stone lies in the kidney this sudden assault causes a sharp stab of pain. Similarly he has found that a "jab" beneath the costal arch opposite the ninth cartilage, or the striking of the abdominal wall below the ribs with the inner border of the hand, causes a sharp stab of pain when stones lie within the gall bladder.

My own experience does not lead me to attach much importance to these signs unless there has been a quite recent attack of colic. I have repeatedly failed to find any physical evidence of any kind in cases where a day or two later many stones were found in the gall bladder. In the presence of these signs we may therefore safely rely upon their value—their absence signifies nothing.

These symptoms are all doubtless due to the impaction and release of a stone at a point so close to the entrance to the cystic duct as to cause obstruction to the free ebb and flow of bile. If the stone should not fall back into the bladder then it may be tightly and permanently wedged, or it may at last work loose. If it is firmly and immovably fixed in the duct, one of two conditions may develop:

(*a*) The gall bladder may become distended with clear fluid, with the result that a condition of "hydrops"

develops. So large may a gall bladder be in such circumstances that a diagnosis of ovarian or parovarian cyst may seem well founded. The largest gall bladders recorded contained over five gallons of fluid (Terrier) and three gallons (F. W. Collinson), and even so alert a surgeon as Lawson Tait operated upon a "parovarian" cyst to find that its pedicle was the cystic duct containing a small calculus.

(*b*) The gall bladder, probably after trivial and temporary distension, begins to contract, and eventually closely embraces the single large stone, or the many stones that lie within it, until all trace of a cavity disappears; the cystic duct remains completely and permanently closed, and the patient has been submitted to what Rutherford Morison calls "Nature's cure" by the rude performance of intraperitoneal cholecystectomy. In such cases the "cure" is not always permanent. Infections arise, new symptoms develop, and an operation has to be performed. It is invariable then to find so large a dilatation of the common duct as to lead to the belief that a stone lies within it.

Whatever the function of the gall bladder may be, its loss results in a considerable distension of the common and hepatic ducts. If the stone which for a time has been closely gripped by the walls of the cystic duct at last works loose, it may lie in a fusiform dilatation of the canal, in a cavity communicating by a niggardly opening on the one side with the gall bladder, and on the other with the common duct. In such cases typical symptoms may be present. There are, briefly, the occurrence of many slight attacks of colic within a brief compass of time. Two or three attacks may appear in one week—attacks beginning quickly, and ending quickly, and of no great degree of severity. The pain is felt in all the upper abdomen, and passes round to the back. There is no chilliness, and no jaundice, and no loss of flesh. The frequent repetition of mild attacks of colic indicates that a stone is loosely impacted, either in the cystic or in the common duct. If in the cystic duct, the symptoms are those indicated above; if in the common duct, the attacks are milder, the pain is restricted to the epigastrium, it occurs more frequently, and is attended by chilliness and possibly a very slight rigor; wasting is almost invariable. Jaundice is commonly absent in both forms. This form of arrest in the progress of a stone is far more frequent in the common than in the cystic duct, so that when many slight attacks of colic occur within a brief space of time, it is very probable that a small stone is loosely impacted in the common bile duct. The absence of jaundice in such a case is of no diagnostic importance, for I find that in almost exactly 25 per cent. of the patients from whose common ducts stones are removed there is not at the time of operation, nor has there ever been in the history of the case, any appearance of jaundice.

When the presence of stones within the gall bladder has been recognized, what is the treatment to be adopted? There is, of course, no medical treatment of gall stones. Nothing that can be wrought by drugs will have any effect in dissolving stones. That is, I suppose, universally admitted. All that is claimed for the treatment at the various spas is that the stones are rendered "latent," and that the patient can bear them for years or months without suffering. Whatever "latency" may be invoked in respect of the clinical declarations of gall stones, there is certainly none attaching to their pathological manifestations. When patients are operated upon after undergoing one or more "cures" extending over several years, it is at once evident that, though symptoms have been kept in subjection, insidious morbid changes have been steadily progressing, changes which may involve the gall bladder, the liver, the duodenum or stomach, or the pancreas; and of these the last is certainly not the least serious. I hold that when once a diagnosis of gall stones has been made operation is always indicated unless there are grave reasons forbidding resort to surgery. Reasons should not be asked to support a plea for operation, but to justify any other course than this. For surgical treatment, all things considered, is far safer than medical treatment; it is curative, not palliative; it is permanent, not temporary. All of us, I hope, read Montaigne's essays, the epitome of human wisdom. Many of the years of Montaigne's life were made wretched by a stone in the bladder, for which in his day nothing but medical treatment could be considered. No one nowadays treats a vesical calculus by other procedures than operation, preferably lithotrity. Yet one still hears a voice raised against the surgical treatment of stones in the gall bladder, though these can be recognized almost as certainly as vesical calculi, though they give rise to suffering equally terrible, though their consequences are at least as serious, though they can be removed with greater safety, and though the chances of recurrence are far less.

There are few problems that have so vexed the minds of surgeons as that concerned with the relative merits of cholecystotomy and cholecystectomy. In surgical controversy it is often heat that is engendered rather than light. At the moment there seems to be an international diversity of opinion upon this subject. The surgeons of America and of England lean towards cholecystotomy; the surgeons on the Continent of Europe, swayed by the powerful influence of Kehr, incline to the routine removal of the gall bladder and the drainage of the hepatic duct. The ideals are different, I believe, because the material is different. Our view is that the diagnosis of gall stones, after a due study of "inaugural symptoms," can be achieved in an early stage of the disease, that the gall bladder is then but little affected, its musculature is almost or quite unimpaired, and the cystic duct remains patent. We hold that when such a gall bladder is opened, relieved of its stones and deprived of its infection by drainage, it may confidently be expected to return to its normal condition and to perform its functions as well as ever. We hold, too, that there are occasions, fortunately very rare, upon which the presence of the gall bladder is almost essential to life or to health; as for example in cases where, owing to a stricture of the common duct, or to a chronic inflammation of the pancreas, it is necessary to find another passage for the bile to the intestinal canal.

The Continental view seems to be that the early recognition of gall stones is not yet possible, that when a diagnosis of gall stones has been made, operation should be reserved for cases in which the cystic duct is blocked, and a hydrops or empyema has developed; for cases of the recurring cholecystitis; or for cases where there is a chronic occlusion of the common duct. In such cases it is held the gall bladder should be removed and the hepatic duct drained.

If the former view be adopted operations will be more numerous, but each operation will be simpler in character, convalescence will be quicker, the death-rate lower, and the complete and permanent recovery more frequent. I am therefore an advocate of the superior claims of cholecystotomy. But in practice I find that I am compelled still to remove the gall bladder with a frequency far greater than I desire.

It is difficult to give the exact reasons which decide one during the conduct of an operation to remove or to empty and drain the gall bladder. Briefly, it may be said that where the capacity and the musculature of the gall bladder are unimpaired, and the patency of the cystic duct remains, the gall bladder should not be removed. Where the walls of the gall bladder are so modified by disease that neither the storage nor the expulsion of bile is possible, and where the canal through which the bile is emptied is in any degree obstructed, the gall bladder, being always useless and often a source of danger or discomfort, should be taken away.

To this general rule, apparently so simple, there are, however, some exceptions. The most important of these concerns the cases in which a stone, usually a solitary stone, has been for some little time engaged in the orifice of the cystic duct. Such a stone, either by reason of the constant pressure which it exerts, or of the fretting of the mucosa which it may cause, is often responsible for the production of an ulcer. Such ulcers are often seen within the gall bladder, in the pelvis, or at the entrance to the cystic duct, when the parts are examined after the operation of cholecystectomy. If such an ulcer forms it tends to heal after the stone which caused it has been removed. In or after healing there must be some contraction of the scar, and the result is the formation of a stricture in the duct. In such a case there is a "recurrence of symptoms" a few months after the operation, and very great and most natural disappointment. The symptoms and the signs which result from a stenosis of the cystic duct are in most cases hardly to be distinguished

from those aroused by a stone. About 10 per cent. of the operations I perform upon the biliary system are secondary—that is to say, a previous operation has been performed with little or no relief. One of the common causes calling for a second operation is the existence of this tight stricture near the orifice of the duct. It is therefore better at the primary operation to remove a gall bladder when a stone is so tightly driven into the cystic duct that it cannot easily be dislodged. As I have said, such a stone is often solitary, and is made up almost entirely of cholesterin, the crystals of which are arranged along lines radiating from the centre to the circumference. Such stones (radiärer cholesterinstein), according to Aschoff and Bacmeister, own a different origin from other stones, being the result in aseptic bile of an increased production of cholesterin by the uninflamed mucosa of the gall bladder. There is, accordingly, this additional reason, if their views be correct, for the removal rather than the drainage of a gall bladder whose lining membrane is subject to this primary disorder.

Again, there are certain cases in which, though the walls of the gall bladder appear healthy and the channel through the duct seems quite patent, a few tiny "beads" are so buried in the mucosa of the duct that they cannot be disturbed. In such cases I have several times emptied the gall bladder of two or three hundred little stones, and have had then to take the gall bladder away because, as soon as the duct had been emptied of bile, these tiny little obstacles in the channel were discovered. In the *Annals of Surgery* (1909, L, 1265) I described "a disease of the gall bladder requiring cholecystectomy." This disease may be present with or without stones. The reddened mucosa of the gall bladder presents on examination a series of white or yellow specks due to small, sharply demarcated areas of a fatty degeneration, to fine scars, or to the deposit of tiny crystals of cholesterin. This condition was also described by Dr. McCarty of the Mayo Clinic, Rochester, under the very appropriate title "strawberry gall bladder." In these cases, too, the gall bladder, though it may appear healthy, and though the expulsion of its contents may not be opposed, should be excised. When, however, all the exceptions are considered, it may still be accepted as the readiest rule to remember at the moment of operation that a gall bladder whose muscular power is unimpaired, whose cavity has suffered no appreciable diminution, and whose duct is not obstructed, should be drained, and not removed.

There is no doubt that even now, in the most practised hands, mistakes are still made in this matter. Gall bladders are taken away that were better left behind and some left that it would have been wiser to remove. But the more expert the hand and the more experienced the judgement the fewer the mistakes. If a mistake must be made it is better to err by leaving a gall bladder than by needlessly taking one away.

A LECTURE
INTRODUCTORY TO AN ADVANCED COURSE ON TUBERCULOSIS

AT THE PUBLIC HEALTH LABORATORY, MANCHESTER.

BY

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THE adoption of State-aided systems of insurance in Germany and Great Britain has of late forced upon the attention of statesmen what was previously well known to medical observers—namely, the great importance of tuberculosis as a source of waste of life and energy. Whatever may have been said to the contrary by recent theorists, the voluntary preventive work which has been carried out in the face of much public indifference during the past forty-eight years by the medical profession, under the influence of pathologists, bacteriologists, and hygienists, has resulted in a considerable diminution of mortality from tuberculosis.

It may reasonably be hoped that, with the help now given by the State, greater improvements will be obtained in the near future. In order, however, that the opportunities now offered should be used to the greatest advantage, it is necessary that medical men engaged in the fight against tuberculosis should be conversant with sound methods, well-ascertained facts, and the few working theories which may serve as guides in the search for more knowledge. Practical acquaintance with facts and methods is needed, not only for the proper discharge of current duties, but also for the purpose of gaining the confidence that is necessary in order to steer the right course and not be constantly tossed to and fro by the various more or less wild hypotheses which gain in rapid succession a short-lived popularity.

The doubts created by these constant changes often lead one to question the value of the best ascertained facts, and may cause a sceptical state of the mind which prepares it for laxity or eccentricities of thought and practice.

Thus an attempt which has been made of late years to apply very accurate mathematical methods to the interpretation of data of doubtful value has disturbed scientific opinion to such an extent that facts capable of clear experimental proof are now doubted.

Heredity, which had ceased to be considered as having more than a secondary share in the spread of tuberculosis, is once more brought forward as a factor of first importance.

The very wide distribution of the Bacillus tuberculosis, and the fact that the great majority of people have at one time or another been harbouring the tubercle bacillus and yet have recovered, as well as the analysis of returns of very unequal values, have led some statisticians, Karl Pearson for instance, to doubt whether tuberculosis should be considered as an infectious disease in the ordinary sense.

Such views, if correct, would strike at the root of all modern methods of prevention of tuberculosis.

The importance of predisposing factors is often so great that not a few clinicians and administrators have given but scant attention to the essential cause. It must be acknowledged that in many cases it is possible to obtain excellent results by dealing thoroughly with predisposing causes, and often there is no other course open to us. It is, however, never safe to disregard, even temporarily or partially, the *causa causans*, because it is liable to variations and may, under the influence of circumstances, acquire infective powers exceeding the average. Neither is it safe to trust entirely to the action of natural or artificial curative agencies. Recoveries from infectious diseases may be apparent or real, and do not invariably result in so great a reduction in the number of infective centres as might be expected. Recoveries brought about by natural processes introduce an additional element of complexity in our estimates of the incidence of various infectious diseases.

In studying the conditions which influence the prevalence of any infectious disease we must, therefore, take account of the possible action of a great number of factors, which may roughly be grouped into the following categories:

1. Distribution and habits of the infecting parasite.
2. Conditions influencing the quantity of the parasite.
3. Conditions influencing the virulence of the parasite.
4. Opportunities and channels of infection.
5. Conditions influencing the resistance of the possible host.
6. Proportion and completeness of recoveries.

Even with regard to clinical observations and experimental investigations great divergences of opinion have occurred of late.

Infection through the alimentary canal was ten years ago considered of little importance by the majority, but now there are observers who believe it to be of paramount importance.

Bovine tuberculosis, which was on apparently good grounds considered a variety of the disease observed in man, is supposed now by some to be a different disease.

These difficulties and others indicate the basis upon which has been framed the advanced course on tuberculosis which has begun this winter in connexion with the Public Health Department of the University of Manchester.

[After these introductory remarks, Professor Delépine gave a demonstration of the results of infection through

the skin, the alimentary canal, and the lungs, and discussed, among other matters, von Behring's and Calmette's views.]

THE CULT OF IODINE AND THE DREAD OF SKIN.

By J. LYNN THOMAS, C.B., F.R.C.S.,
SURGEON TO KING EDWARD VII HOSPITAL, CARDIFF.

THE many papers which have lately appeared upon the action of iodine preparations upon skin in the practice of surgeons seem to me to be a reincarnation of the old dread of skin. I have not yet seen evidence that other surgeons have carried the ritual of iodine into the regions which it has invaded in my practice for many years. The end of another year prompts me to record my faith in the cult of iodine evolved unconsciously from the days when "Bryant's sherry," otherwise "diluted tincture of iodine," was in general use with me instead of carbolic acid—1 in 20—which played havoc with my skin, and more than once produced carboluria.

It is over twenty years ago that a German sailor was brought to the Cardiff Infirmary about midnight with a "huge bark" of his shin, caused by the crank-shaft of an engine. The damage had received "first aid" treatment, for "the bark" had been plugged with waste wrung out of oil. The skin of the shin for a few inches below the knee had been stripped up, carrying with it periosteum and ligamentum patellae. The knee-joint had been freely opened, and into it the "first aid" dressing had been introduced.

A large bucketful of "Bryant's sherry" was prepared, and the patient was anaesthetized and turned on his face in order to get the fully flexed knee-joint into the lotion. After thorough cleansing by immersion and mopping, the parts were replaced and the joint put at rest by splinting. Next morning by daylight I was alarmed to find that my hands were discoloured by iodine, showing that the "sherry" was stronger than was usual in my practice; the patient's skin was stained in the same way, and this caused me some anxiety, for I feared "irritation." My fears turned out to be groundless, for the case did well, and my dread of an overdose of the iodine preparation vanished. The man returned some months afterwards with the compliments of a German professor upon the good result obtained by the treatment.

Slowly and by cautious steps I got into the practice of applying the undiluted tincture by means of the eye end of a needle to the redness which often resulted in suture holes before the use of gloves was introduced into my practice in 1898. An account of this appeared in the BRITISH MEDICAL JOURNAL in January, 1899, the first paper, I believe, to be published in this country on the subject.

I well remember that in one of the first cases in which I used screws, a case of fractured tibia with displacement due to oblique injury, in private practice in 1896, redness and signs of "irritation" were observed a few days after operation; removal of all sutures with free swabbing of the wound with the tincture gave a happy result, for all went well. From that time until the present tincture of iodine has on and off played an important part in my routine practice in almost every region upon which operations are done, and I will indicate briefly the conditions in which I think it is of great use, because it has a strong action as an antiseptic, and there is little or no tendency to absorption through the lymphatics.

In the Nursery.

In order to minimize the risks of infection during accidents in childhood I kept a stock bottle of tincture of iodine in the nursery in order to have it promptly applied to bruises, "gravel rashes," etc. I gave up carbolic fifteen years ago, because on returning home I often found that there was no visible evidence of its having been applied to the required spot. I therefore substituted the tell-tale iodine, and was often amused to find that in such a case as that of a small scratch upon the front of the knee, iodine had been diligently applied half way up the thigh and down nearly to the ankle—ritual run riot. During the last few years, when visiting many home and foreign clinics, I have been amazed to find that those who know better than a nursemaid do very much the same thing when they paint mahogany colour the whole of the front of the abdomen and part of the chest in cases of appendectomy!

I will now leave the subject of iodine and skin, and will give illustrations of cases in regiona surgery where I feel the use of iodine is indicated, either on account of pre-existing sepsis, or because I feel that there is a possibility of infection in a clean wound—in such cases, for instance, as an accidental tear in a rubber glove, or those in which during an operation upon quiet gall-bladder and appendix troubles septic conditions are found.

Brain Surgery.

In cases of abscess of the brain I always fill the cavity with the pure tincture, and plug with gauze soaked in it. I may cite a case from my friend Mr. Naunton Morgan, F.R.C.S.E., of a large abscess of the frontal lobe which would not heal up satisfactorily until I removed the hernia cerebri with the cautery, and then dealt with the cavity by swabbing it with iodine.

Cerebellar Tumour.

In a case of a large tuberculous tumour which was removed successfully, the cloth which had been in contact with the skin came accidentally in contact with the damaged cerebellum, and in order to render the area less suitable for the growth of organisms, I painted freely with iodine.

Cerebral Tumour.

Last year I removed successfully an extraordinary tumour—a large calcified parathelioma, or endothelioma, from the left lateral ventricle. As I had removed the tumour with a naked finger and thumb dipped in iodine, I afterwards gently swabbed the damaged area of the cortex cerebri with iodine. The wound healed up promptly.

Abdominal Surgery.

In all cases of abscess due to appendicitis I always and immediately apply iodine freely to the surfaces that have been exposed by incision and mopping up of the pus; the result, in my opinion, has been more satisfactory than it used to be before its introduction.

Suppuration of Right and Left Ovarian Cysts.

A woman, who had been very ill with pain and pyrexia for over a week, had a fixed hard tumour occupying the abdomen from about 2 in. above the umbilicus downwards to the pelvis, where on vaginal examination I found an immovable hard vault. The operation had to be done expeditiously, and whilst placing the gauze roll above the tumour to isolate the intestines many ounces of offensive pus welled out through two gangrenous patches on the posterior surface of the cyst right into contact with them. After much serious trouble and difficulty in dissecting the left tumour from Douglas's pouch, uterus and bladder, I was compelled to leave three long haemostatic clamps upon big vessels at the bottom of Douglas's pouch. I then found that there existed a second small suppurating cyst in the right ovary, the size of my fist, attached to the appendix and ascending colon, and this also during its removal burst through one gangrenous patch in the cyst wall. As the peritoneum had been packed, only the pelvis and parietal peritoneum were flooded; after careful and forcible mopping the whole surface and the intestines were dealt with by pouring in about two ounces of iodine and swabbing. The forceps were removed on the second day, and after a little oozing through the opening left the case did well.

Urogenital Surgery.

In several cases of pyonephrosis, some large with pultaceous material in the calyces, and extending down a dilated ureter, I have been able to get the damaged kidney restored to function without a fistula in the loin. I am much more conservative as regards the removal of kidneys damaged by tubercle or calculus than the majority of surgeons whose practice I have had the privilege of witnessing; I was led to adopt this conservative attitude by two incidents. The one occurred in my practice many years ago: a lady had a large pyonephrosis with creamy contents; when the patient was convalescent with a drain in her side, I told her husband that, in my opinion, it was advisable to remove the kidney. Afterwards he told his wife of my views and we had a further consultation. They

did not accept my advice, which at that time I believe was in accordance with the view of the majority of urogenital surgeons, and perhaps now. The wound in the side healed up firmly, and the patient has remained quite well and has borne several children. This is a significant example of the curability of tubercle in organs which are easily removable, and perhaps too often removed. The other case was that of a practitioner, who removed a kidney that he thought had been irretrievably damaged by calculi; it turned out to be the only kidney the patient possessed.

In all the kidney cases of the above nature I thoroughly and forcibly mop the removable material from the interior of the cavity and wash with iodine.

Urethrotomy.

Since I introduced into my practice the method of injecting tincture of iodine forcibly by a glass syringe half full of air, both before and immediately after performing urethrotomy, I have not been worried with "urethral fever" or other symptoms of septic absorption from the wounded urethral canal.

Prostatectomy.

At the annual meeting of the British Medical Association in Toronto (1906) I advocated the plan of performing prostatectomy in two stages in cases where patients suffered severely from toxaemia, partly on account of the fact that an operation created additional raw surface, through which an additional dose of septic matter took place at once; this, in my opinion, too frequently turned the balance against the patient. Since that time I have given up the operation in two stages (*à deux temps*), because I have improved the technique in the direction of prevention against the immediate absorption from the raw surfaces made at the operation. This is done in the first place by a preliminary injection of an ounce of tincture of iodine into the bladder before distending it with air; by my combined method of performing prostatectomy, which usually takes only a few minutes, I have been able to save several moribund patients since the introduction of the free use of iodine—one was an octogenarian with calcified arteries, which showed almost like stems of "churchwarden" pipes upon the radiographic plate.

Rectal Operations.

After thoroughly mopping the mucous membrane—for example, in operating for haemorrhoids—I swab the mucous membrane with iodine, and then pass an anchored iodine-soaked mop up the rectum for about six inches. This prevents a possible infection of the field of operation; when the operation is finished the mop is pulled out.

Psoas and Iliac Abscess.

Lastly, I should like to draw attention to the following method of treating psoas or iliac abscesses which have not been previously incised nor broken down spontaneously. After opening the abscess in one or more places, according to the requirements laid down by Treves many years ago, I complete the evacuation of the pus and of the lining membrane in the thorough manner which he advocated. I then flood the whole of the interior of the cavity with tincture of iodine, and then mop it dry; afterwards the whole cavity is plugged firmly with a roll of sterile gauze, and the wound closed by mass sutures. The patient is then swathed in cotton-wool, and bandaged firmly in order to keep pressure from without upon the dressing within. On the second day the mass sutures and the gauze are removed from the cavity, and the wound is closed "in tiers," as in the ordinary operation for hernia.

I have twice performed this operation with success upon double psoas abscesses, but not at one sitting.

Every surgeon suffers more or less from what may be called "the dread of skin," and in my case the cult of iodine has developed to such a degree that I venture to record the way it has almost imperceptibly evolved.

THE Research Defence Society has opened a bureau at 171, Piccadilly (opposite Burlington House), for the exhibition of pictures and specimens and the distribution of literature.

ABERRANT AND RECURRENT OSTEOMYELITIS.

BY

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UNDER the heading of "Acute Epiphysitis," a very instructive article appeared in the JOURNAL of July 20th, 1912, by Mr. Charles M. Kennedy, F.R.C.S., and I venture to publish the notes of three cases occurring in my practice, which support and partly supplement the conclusions arrived at by him. Mr. Kennedy applies the term "acute epiphysitis" to that acute destructive inflammation of the growing end of bones usually due to virulent infection by the staphylococcus. He dislikes the term "osteomyelitis" as applied to that disease, because it is vague, and though admitting that "epiphysitis" is a misnomer, he prefers it on account of its convenience. I prefer the term "osteomyelitis," which, although it covers conditions other than the disease above mentioned, has the merit of being a more exact description of the actual pathological condition. It is the name used by the Glasgow school of surgeons, and favoured particularly by Sir William Macewen, whose work in connexion with the disease is well known. In my opinion "epiphysitis" holds the same relation to "osteomyelitis" that "typhlitis" did to "appendicitis." Both are misnomers, are incorrect, and ought not to be used; the names of medical and surgical diseases should be made to indicate, as nearly as possible, the exact anatomo-pathological condition of the structures involved.

CASE I.

H. M., a boy aged 14 years, came under my notice on February 28th, 1911. He had a rigor two days before, and complained of pain at the upper part of the right thigh, made worse by walking or standing. His temperature was 103° and pulse 120. His face was flushed, the eyes bright, and tongue coated with a dirty white fur. The urine was distinctly albuminous. Physical examination revealed a spot of definite tenderness at the upper part of the thigh just below the middle of Poupart's ligament. Percussion of the outer side of the right trochanter also caused pain in this part. The hip-joint moved freely and without pain in all directions, except for slight adductor spasm when the thigh was abducted. There was no swelling or discoloration of the skin over the painful area. None of the other joints were swollen or painful, and apart from headache he made no complaint of pain in any other part of the body. The heart sounds were quite clear. On the face, chest, and back brownish stains and flat adherent scabs, due to impetigo contagiosa, were discovered. I suspected he was suffering from acute osteomyelitis of the upper part of the right femur, and asked a surgeon to see him in consultation. The latter concurred in my opinion, but, as the local signs were somewhat abating, it was considered advisable to wait and watch how the symptoms progressed. The following day, as the boy's general condition had not improved, the temperature being still 102°, I sent him to the Royal Alexandra Infirmary, Paisley. Owing to the doubtful nature of local signs at the upper part of the right femur, operation was again deferred, but two days after I received a note from the surgeon saying that he had been obliged to operate on the left tibia, where he found about a pint of pus under the periosteum, which was completely stripped from the shaft. No complaint of pain in that region had been made by the boy either before or after entering the hospital, and the condition was only discovered by the surgeon himself in course of his examination. After operation, slight pain continued in the upper part of the thigh, but no further advance of symptoms took place here. The temperature remained at 102°, pulse 112, and signs of pyaemic infection of the lungs occurred, from which death took place about three weeks after admission to hospital.

Mr. Kennedy, in his paper, mentions cases which are admitted to hospital with pyrexial symptoms and a tender spot. These are entered as "? epiphysitis," and if they recover, as sometimes happens in a few days without operation, they are then most probably ascribed to monoarticular rheumatism. The case above reported, no doubt, would have been classed as "? osteomyelitis" of the upper part of the right femur, but the occurrence of definite symptoms of acute osteomyelitis of the tibia of the opposite leg makes it more than probable that there was a primary focus of osteomyelitis in the upper part of the right femur, which although it, in a manner, abated or retrogressed, was undoubtedly responsible for the subsequent infection of the tibia. The simultaneous occurrence of impetigo contagiosa on the skin, when the bone symptoms developed, is a striking illustration of the theory that skin lesions are the chief sites of entry for the organisms (staphylococci) of acute osteomyelitis, and

the subsequent development of the disease in the left tibia, at a situation far removed from the primary focus in the femur, is strong evidence of the extreme vulnerability of growing bone tissue to staphylococcal infection without previous trauma. The case above reported is of an unusual and aberrant type, but Sir Hector Cameron has described a case still more unusual: a man, aged 25 years, developed an abscess in the left leg, due to staphylococcic osteitis of the left tibia, eight years after having had his right leg amputated for acute osteomyelitis and necrosis of the right tibia.

Acute osteomyelitis is one of the most formidable diseases of childhood, and entails considerable loss of life and limb. The suffering during the acute stage is very great and the convalescence after operations on affected limbs is very tedious. Much deformity as a rule results in those cases in which bone loss has been great as a result of necrosis, and it is in cases such as these that a successful bone-grafting operation gives excellent results. The operation of transplanting bone removed from tibias on which osteotomy had been performed was first performed by Sir William Macewen in the case of a boy who had lost the shaft of his humerus by necrosis due to acute osteomyelitis. This operation was attended by brilliant results, and although Macewen's conclusions—namely, that bone forms bone and the periosteum has little to do with the process of repair—have not been accepted by all surgeons, others have followed his teaching, and many cases of successful bone transplantation have now been recorded. In a case of necrosis of the whole diaphysis of the tibia, due to acute osteomyelitis, I have seen the fibula split longitudinally and a portion laid in a bed of granulations springing from the tibial epiphysis, with the result that a large portion of the lost tibia was regenerated. Unfortunately, the sufferings of those afflicted with osteomyelitis do not always end when the acute disease has been successfully combated. Sir Hector Cameron says:

> Few patients pass through a serious illness of this kind, especially with necrosis and formation of sinuses in such important bones as the femur, tibia, or humerus, without having relapses, sometimes numerous, and often very severe in character.

These relapses may take place years after, with intervals of good health between them, and they may persist, off and on, till a very advanced age. I give below the notes of two cases of recurrent osteomyelitis, which illustrate the relapsing nature of the disease.

CASE II.

J. L., aged 38, a shepherd, came to me on July 13th, 1908, complaining of pain and stiffness of the right leg on walking. On examination I found that the lower third of the right femur was markedly thickened; there was a depressed adherent scar, 2 in. long, situated on the inner side of the lower third of the thigh. The skin around this was thickened and stained a brownish-red colour; deep pressure over the scar region revealed a spot of distinct tenderness; there was no fluctuation, although the skin and underlying tissues were much swollen, and he had no fever; his general health was apparently good. He stated that he had suffered from bone disease in the part complained of when he was 10 years old, and that "little bits of dead bone had come away" then. Six years before I saw him he had an abscess in the part complained of, which was treated in the Royal Infirmary, Glasgow, but no bone was removed. I diagnosed his condition as chronic osteomyelitis with an acute exacerbation, and ordered him to lie up and rest his leg for a week or two. Hot antiseptic fomentations were applied to the inner side of the thigh over the painful area. He did not improve; his temperature, previously normal, rose to 101° F., and the area of redness and tenderness increased. A large bulla formed over the scar area; this was opened and dressed antiseptically; it contained only clear serum. I expected to find an abscess form and point at any time, and at every visit I went prepared to have to open it. His condition remained unchanged for three weeks, when I tried, under Sir Anthony Bowlby's recommendation, the effect of 15-grain doses of potassium iodide t.i.d. and mercurial ointment applied on flannel to the painful part. He began to improve shortly after, and the pain and tenderness subsided, so that he was able to resume his occupation. The swelling also diminished, but the area round the scar remained firmly indurated.

The slow progress of this case meant a period of over twelve weeks' disablement for the patient, and though his painful symptoms subsided without requiring operation, I have no doubt that his leg will again prove a source of trouble to him. Sir Anthony Bowlby, who happened to be resident on holiday in the district at the time, very kindly offered me his opinion on the case. I had been rather puzzled owing to its rebellious nature, and feared that a sequestrum was forming and the inflammatory symptoms had developed in the process of separation. I remember Sir Anthony Bowlby then informed me that old-standing cases of osteomyelitis frequently gave trouble in after-life, and his opinion was that the periosteum at the seat of the old disease was in a spongy, hypervascular condition, which readily gave rise to subperiosteal haemorrhages, as a result of slight injuries. Suppuration did not always ensue, although the parts frequently appeared on the point of breaking down. He related the case of a patient on whom, when a boy at Eton, he had operated for acute osteomyelitis of the humerus, and who had frequent relapses in later life, when the parts around the seat of the old disease assumed a very threatening appearance. I am much indebted to Sir Anthony Bowlby for his kind assistance in the case above mentioned, as well as in other cases in which he favoured me with his advice.

CASE III.

J. W., aged 24 years, a law clerk, came to me on February 8th, 1912, complaining of weakness of the right arm and hand and pain and tenderness at the upper and inner side of the right humerus. On examination I found the right arm about 3 in. shorter than the left. The muscles of the arm and forearm were atrophied, and the limb looked very much stunted, and was carried in a limplike condition at the side of the body. There was a scar about ¾ in. long situated on the upper third of the right arm at its inner side, and pressure over this revealed a spot of tenderness. The movements of the shoulder-joint were quite free, but caused some pain at the seat of the scar. He said that when he was 12 years old his arm first began to trouble him, causing him great pain, and that the scar on the inner side was the result of the opening of an abscess in that situation by the doctor who attended him. Previous to the onset of this trouble his right arm was the same length and as strong as the left. His present condition was unaccompanied by fever, although the skin around the old scar was reddened and tender. He had been lifting some heavy ledgers the week before he came to me, and blamed that as the exciting cause of his condition. Two years before he came to me he had been in the Paisley Infirmary under the care of a surgeon there. He said that his arm was *x*-rayed, but no operation was performed, and he was discharged without any improvement. I advised him to rest the arm in a sling, and, by the use of potassium iodide internally and mercurial ointment applied locally on a piece of flannel, the inflammatory symptoms subsided, but the weakness of the arm and hand still remained.

This was another instance of recurrent osteomyelitis. The shortened arm was, no doubt, the result of injury to the upper epiphysis of the humerus at the time of his first attack. No operation on the bone was done on that occasion, and it is just possible that, if the bone had been trephined and the medulla curetted, his epiphysis would have been saved. The disastrous results to the arm in this case are a serious lesson that periostitis with abscess, in the limb of a growing boy, should always be regarded as strongly suspicious of accompanying osteomyelitis, and treatment ought not to end in simply evacuating the abscess, but search should be thoroughly made for a primary focus of osteomyelitis in the bone shaft on the diaphyseal side of the epiphysis.

The two cases reported above serve to show that in bones previously affected with pyogenic organisms the organisms may still persist in the parts, and give trouble years after the primary disease has subsided and the patient thinks himself quite free. In a lecture entitled Clinical Illustrations of the Persistence of Disease Germs in the Human Body, Sir Hector C. Cameron says:

> I do not think it is sufficiently appreciated what a lifelong trouble this infantile infective disease of bone often proves itself, laying a man aside from business time after time during his life. Twice I have seen men over 70 years of age laid up by most serious and painful abscesses, occurring in each case in connexion with a tibia from which in early life numerous and large sequestra had separated and been removed after long-continued suppuration. In each the tibia was greatly deformed and showed the depressed scars of many old sinuses, and more than one relapse had occurred during the long life of both men. But recurrence is not always confined to the part in which the primary infection takes place. It may occur years afterwards in another part of the body.

I have never used any antistaphylococcic serum in the treatment of relapsing osteomyelitis. In acute cases it is said by those who have tried it to be of no value. It certainly could not take the place of incision with the knife, but in the recurrent type of case, such as the last two described above, it would probably have some value and would be well worth a trial.

PRIMARY SARCOMA OF BOTH BICEPS MUSCLES.

BY E. SCOTT-CARMICHAEL, M.B., F.R.C.S.,
ASSISTANT SURGEON TO THE ROYAL INFIRMARY AND HOSPITAL FOR WOMEN, EDINBURGH.

THE condition found in the following case seems sufficiently rare to justify its publication; I have not been able to find in the literature a record of this pathological condition affecting the biceps muscle.

The interest of the case lies in the nature of the tumour, the fact that it was bilateral, and situated in identical positions in the biceps muscles.

A working man, aged 56, was sent to hospital on July 27th, 1912, complaining of a swelling in the right upper arm, with a smaller and similar swelling on the left upper arm. He first noticed the swelling on the right side in April, that on the left side being noticed about a week before he came to hospital. They caused him no pain or inconvenience, but he thought his

Fig. 1.

biceps muscle was more prominent than it ought to be, and therefore came for advice.

Condition on Examination.

The patient had symmetrical swellings in the lower part of both biceps muscles. They were painless, rather firm and elastic, and of the consistence of muscle in contraction. The swelling in the right muscle was about the size of a large hen's egg, that in the left of a small marble. There was no discoloration of the skin over them, and the swelling was limited to the biceps muscle, except that on the right side there was a small pea-like nodule in the brachialis anticus muscle. The patient denied any syphilitic history, and there was no history of an injury.

The general appearance and characters of the swelling in spite of the history led one to make a provisional diagnosis of gummata in both biceps muscles, and the patient was put upon antispecific treatment for a fortnight.

Operations.

It was thought advisable, however, to explore the smaller swelling on the left side under a local anaesthetic. This was done, and a semisolid tumour was shelled out of a fairly well-defined capsule. The tumour had a yellowish-grey appearance, but showed dark areas, obviously haemorrhages, throughout its substance. The pathological report was that the tumour was of a sarcomatous nature, consisting of mixed round cells.

The patient was therefore admitted for operation for the tumour in the right biceps muscle, which was performed on August 5th.

The tumour was removed along with a large portion of the lower half of the biceps muscle, a small slip being preserved posteriorly behind the musculo-cutaneous nerve. The nodule in the brachialis anticus was also removed.

PATHOLOGICAL REPORT BY DR. JAMES MILLER, PATHOLOGIST, ROYAL INFIRMARY.

The tumour in the biceps measured 3 by 1¼ in. It was grey in colour, with numerous small haemorrhages, especially at the margins and some opaque white areas of necrosis in the centre.

The tumour in the brachialis anticus measured 1¼ by ½ in. It was more haemorrhagic and less well defined.

Microscopic Report.—The tumour was uniformly cellular except for bands of well-developed tissue running through it. The cells were rounded or polygonal, moderately large, but varying considerably in size. The nuclei were large, rather pale, staining with a wide-meshed chromatin network. Mitotic figures were fairly frequent. Occasionally larger cells were met with containing six, eight or more nuclei. There was very little stroma between the cells. Many of the vessels were fairly well developed, but some were thin walled. No haemorrhage or necrosis was found in the portion examined. Summing up the histological characters of the tumour, it may be called a medium-sized round-cell sarcoma.

After-History.

The patient since the operation has been under treatment with Coley's fluid. He reported himself on November 2nd,

Naked-eye Appearance of Tumours.

Right biceps muscle with tumour.

Right brachialis anticus muscle with tumour.

Fig. 2.—Drawings to show sarcomatous growth in right biceps and brachialis anticus muscles.

when the actions of the biceps at the elbow and superior radio-ulnar joints were normal, except that they were slightly weaker than the left; he expressed himself highly satisfied with the power and use of his arm.

There was no sign of any recurrence of the growths.

DR. WALTER HUNTER, M.O.H. for the West Bridgford Urban District, has been appointed to the Commission of the Peace for Nottingham.

THE annual report of the Surgeon-General of the United States Navy, published on December 11th, states that while contagious diseases have markedly diminished among the men in the navy, mental affections have increased. About 28 per cent. of men enlisted from the Southern States are infected with hookworm; 50 per cent. of these come from South Carolina and Alabama.

ON December 17th a circular was sent to the medical practitioners of New York informing them that in future they would be expected to report promptly all cases of venereal disease coming under their notice. The name and address of the patient are not to be given, but the sex, age, and the character and stage of infection, with any other relevant information, must be stated. A supply of cards to be used for the reports will be furnished by the Health Department on application. The Wassermann test is made free of charge by the Department, which also provides facilities for gratuitous bacteriological examinations in cases of suspected gonorrhoea.

COCAINE POISONING.*

BY

CHUNILAL BOSE, M.B., F.C.S.,

A CHEMICAL EXAMINER TO THE GOVERNMENT OF BENGAL; FELLOW OF THE CALCUTTA UNIVERSITY.

NOT many years ago cocaine was a drug hardly known to the people of India outside the medical profession, and now, sad to reflect, it has taken a vigorous hold of a certain class of people in this country both in town and village. In Calcutta, despite the vigilance of the excise authorities, and notwithstanding the stringent measures directed by the Government against the possession and the sale of this substance by unlicensed persons, there is reason to believe that the cocaine habit has much increased and is rapidly spreading. Moreover, it is perhaps safe to say that a considerable proportion of the crimes committed in this city may be traced to the utter moral depravity which follows the habitual use of cocaine. The daily papers are full of the reports of raids on cocaine dens and of cocaine seizures, and the references made to the Chemical Examiner in connexion with the illicit import and the unlawful possession of cocaine are rapidly and progressively on the increase, as may be seen from the figures given below, compiled from the annual reports of the Chemical Examiner's Department, Bengal, for the last four years:

Year.	Number of Samples of Cocaine Seized and Sent for Examination.
1908	125
1909	243
1910	621
1911	2,138

Although the cocaine habit has been described by Erlenmeyer as the third scourge of humanity, the two first being alcohol and opium, yet in some respects cocainomania is more disastrous in its effect on the moral, intellectual, and the physical well-being of the subject. Professor Berkeley, of the Johns Hopkins University, has observed that he would trust a cocaine debauchee even less than he would a morphinomaniac, stating as his reason that the moral rectitude and the will power of a cocaine eater always suffer more severely. In Taylor's *Principles and Practice of Medical Jurisprudence*, it is said, referring to chronic cases, that,

> like morphia, the habit of cocaine seems to sap the moral fibre of its devotees, so that they become reckless of everything in their efforts to obtain their dose—lying, cheating, stealing, nothing comes amiss to them, so that their craving is satisfied.

Dr. A. H. Brundage, Professor of Toxicology in the Brooklyn College of Pharmacy, remarks that the cocaine habit

> is the most seductive, dangerous and mentally, physically and morally destructive of all the drug habits. Cocaine fascinates by the promptness with which it relieves all sense of exhaustion, dispels gloom, and exhilarates, producing a sense of happiness and well-being which transports at once to a longed-for Elysium. Primarily the after-effects are scarcely perceptible, but through continual indulgence an intense craving for the drug or its effects is produced.

It is the utter banishment of gloom and the delightful sense of *bien-être*, which together are directly responsible for the intense craving, characteristic of the habit and productive of the physical, mental and moral degradation and depravity which ensue.

Professor Berkeley reports that the body weight sinks rapidly, even one-fifth to one-third of it being lost within a few weeks.

Dr. Kailas Chandra Bose, Rai Bahadur, C.I.E., in the March number of the *Indian Medical Gazette*, 1902, recorded several cases of the habitual use of cocaine, and summarized the principal symptoms noticed. These were headache, anorexia, emaciation, insomnia, a blackening of the tongue and teeth, dilated pupils, rapid and feeble, sometimes irregular or intermittent pulse, fainting attacks, hallucinations, incoherent speech and convulsions. In one case there was obstinate diarrhoea, and in another there were symptoms of acute mania.

Prognosis.

Professor Berkeley observes that the prognosis is "most gloomy," for,

> even though the patient recover from one attack, he very frequently relapses into his evil habits. In the most favourable cases there remains an extraordinary weakness of the will power, with accentuated tendency to relieve the physical and psychical languor by substituting for the cocaine alcohol, morphine, and other nervines in large quantities.

Dose.

The medicinal dose of the hydrochlorate of cocaine is $\frac{1}{4}$ to $\frac{1}{2}$ grain. The minimum fatal quantities on record are $\frac{1}{3}$ grain hypodermically, 12 to 15 grains by the mouth, and 22 grains by rectal injection.

A few cases have been recorded in European practice in which the drug either proved fatal or produced very severe symptoms when it was injected hypodermically or passed into the natural cavities prior to a surgical operation or administered internally. In one case the injection of $3\frac{1}{2}$ grains into the breast of an adult woman was immediately followed by epileptiform convulsions, and in twenty minutes by death. In another instance, the hypodermic use of $\frac{3}{4}$ grain in a woman, aged 71, proved fatal in five hours. In the *Pharmaceutical Journal*, 1886 (iii, 16, 721), a case is recorded in which the hypodermic injection of $\frac{1}{20}$ grain caused dangerous symptoms in a girl aged 12 years. On November 2nd, 1895, a case was reported in the *Lancet*, in which 2 drachms of a 10 per cent. solution of cocaine (representing 12 grains of the drug) taken internally for the relief of a toothache caused death in twenty minutes, with epileptiform convulsions. In another case $\frac{1}{30}$ grain applied locally to the conjunctiva gave rise to dangerous symptoms; while in still another instance acute manifestations followed the injection of half a drachm of a 10 per cent. solution—that is, grains iij—into the urethra. A rectal injection of 22 grains of cocaine has been productive of death.

The prominent symptoms in all these acute cases of poisoning consisted of dryness and numbness of the mouth and throat, vertigo, dyspnoea, failure of the special senses of sight, hearing, and smell, numbness of the extremities, rapid and feeble, sometimes irregular or intermittent pulse, muscular tremors, a staggering gait, dilated pupils, epileptiform, sometimes tetanoid convulsions, cyanosis, and insensibility.

The practical lesson to be learnt from cases like these is the extreme care which is necessary in administering the drug for the production of local anaesthesia in dental practice and surgical cases.

No case has yet been recorded in Indian medical practice, so far as I have been able to ascertain, of acute cocaine poisoning with a fatal result. In the twenty-seven years during which I have been connected with the Chemical Examiner's Department in Bengal, I have not had a single case of fatal cocaine poisoning referred to me, except the three which I am about to recount, all of which occurred within the past six months. Not only does this fact appear to indicate that the drug is very easily procurable by the common people, in spite of the strict regulations against it, but it also seems reasonable to infer that the people are getting to be more familiar with the uses to which the substance can be put.

CASE I.

B. D., a Hindu male, aged about 23 years, a resident of Calcutta, and by occupation a pressman, was addicted to alcohol and to cocaine. On May 28th, 1912, he played cards with his friends up to a late hour of the night and distributed pan (betel) with cocaine to his companions, taking the largest share himself. He left the place soon after, and at 2.30 a.m. on May 29th, he was found lying unconscious and groaning at a neighbour's doorway. Medical aid was summoned, the man was removed to hospital, but died on the way there.

Post-mortem Appearances.

Body poorly nourished; rigor mortis present; pupils normal. The lungs, the kidneys, the brain and its membranes and the mucous membrane of the stomach were found congested. The stomach contained about 2 oz. of recently taken food without any special odour.

* Read at a clinical meeting of the Calcutta Medical Club, November, 1912.

Chemical Analysis.

The viscera of the deceased, and a small quantity of urine found in his bladder were forwarded to me for chemical analysis, and I detected cocaine in both. I could detect no other poison in the viscera. The dose taken by the deceased could not be ascertained.

CASE II.

K., a Hindu female, aged about 28 years, a woman of the town, was in the habit of taking cocaine. She left home at about 1.30 a.m. on August 29th, 1912, and returned at 6.30 a.m. a few hours later. She was seen to be staggering while washing her mouth at a hydrant hard by. Very soon afterwards she lay down, became unconscious, and in a few minutes she died.

Post-mortem Appearances.

Body fairly nourished; rigor mortis present; pupils slightly contracted; there were no marks of violence on the body. The brain and its membranes, the liver, the spleen, the kidneys, the ovaries, the bladder, and the mucous membrane of the stomach were found congested. The right heart was dilated, and contained dark fluid blood. The stomach contained about 3 oz. of recently taken vegetable food without special odour.

Chemical Analysis.

The viscera in the case were sent to me for chemical analysis, and I detected a marked quantity of cocaine in them. I detected no other poison in the viscera. Neither the dose taken nor the fatal period could be ascertained in this case.

CASE III.

M. K., a Hindu female, aged about 20 years, lived with her husband in Calcutta. On October 17th, 1912, she visited her sister-in-law, L. K., and at about 7 p.m. on the following day she offered L. some white powder which she believed to be a specific remedy for acidity and indigestion. They each took some of the powder, and within half an hour they became ill and then unconscious. M. died soon after, but L. regained consciousness about four hours later, and recovered at the Medical College Hospital.

Post-mortem Appearances.

Rigor mortis present; body well-nourished; pupils slightly contracted; there were no external marks of violence visible. The brain, the meninges, and the lungs were highly congested. The liver, the spleen, the kidneys, the larynx, and the trachea were also found congested. The stomach contained about 9 oz. of sour-smelling food.

Chemical Analysis.

The viscera were forwarded to me for chemical analysis and I detected cocaine in them. There was no other poison present in the viscera. The dose taken by the deceased could not be ascertained, but death took place in this case in about half an hour.

CASE IV.

The case of L. K., sister-in-law of victim No. III, constitutes a fourth case, but it did not terminate fatally. The dose taken rendered the patient unconscious in half an hour, and kept her so for four hours. Her pulse and respiration are said to have been normal during her stay in hospital and her pupils slightly dilated.

The stomach washings were sent to me for chemical analysis, and I detected cocaine in them but no other poison.

Method of Detection.

In all these cases I extracted cocaine by Stas's process. The ethereal extract, on being applied to the tongue, produced very marked anaesthesia. When this was dissolved in dilute hydrochloric acid and evaporated to dryness in a water bath it left a residue which gave well-marked reactions with the principal alkaloidal reagents.

The hydrochlorate thus obtained, when treated with a solution of picric acid, gave a copious precipitate which under the microscope showed the usual long needles arranged in star-shaped bundles.

A fresh portion of the residue treated with a drop of a strong solution of alum and next with a drop of potassium permanganate solution yielded a deep reddish-brown precipitate. The latter, under the microscope, showed the characteristic rectangular plates.

Another portion of the residue was treated with strong nitric acid and evaporated to dryness. The addition to it at this stage of a few drops of an alcoholic solution of potash caused the characteristic peppermint-like odour of ethyl benzoate to evolve.

A 5 per cent. solution of chromic acid added to a solution of the hydrochlorate produced an abundant precipitate which disappeared on shaking. The subsequent addition of a drop of strong hydrochloric acid caused a copious yellow precipitate.

Treatment.

In acute cases the stomach pump should be used, as the anaesthetic effect of the drug on the mucous membrane of the stomach might interfere with the action of an emetic. Hot coffee and stimulants, such as brandy, ether, and ammonia, should be freely given, and hypodermic injections of ether, strychnine, and digitalis might be desirable. In convulsions I may say that chloroform is useful. Morphine appears to possess an antidotal action against cocaine, and it might be used hypodermically. Inhalation of amyl nitrite has also been recommended. Perfect rest in a lying position should be enjoined in all cases.

My best thanks are due to Captain St. John Moses, M.D., D.Sc., F.R.C.S., F.R.S.E., I.M.S., police surgeon of Calcutta, for kindly supplying me with the notes of the *post-mortem* examination of the three fatal cases and for generally revising this paper.

AN EXPERIMENT TO ILLUSTRATE THE EFFECT OF SIZE OF POPULATION ON THE RATE OF SELECTION OF NEW BACTERIAL RACES.

BY W. J. PENFOLD,

ASSISTANT BACTERIOLOGIST, LISTER INSTITUTE, LONDON.

IN the course of a research into the question of the selection of a variant of *B. typhosus* in respect of dulcite-fermenting power, the following experiment was designed with the view of ascertaining whether the bulk of the fluid medium in which the organism was grown had any marked influence on the rate of selection of the new race.

A set of nine beakers, each beaker being 5½ cm. in diameter, and a set of nine test tubes, each tube being 1 cm. in diameter, were filled to the depth of 1 in. with the same sample of dulcite peptone water of the following composition, and containing litmus as indicator:

Peptone (Witte)	20 grams
Dulcite	5 ,,
Salt	5 ,,
Water	1 litre

The dulcite-peptone water was rendered faintly alkaline to litmus and sterilized by steaming on three successive days. The tubes and beakers were of the same height, so that the condition of aëration of the medium was strictly similar in each series. This precaution is necessary, as it is well known that alkali formation from the peptone is greatly favoured by free access of air. Each member of these two series was inoculated with the same quantity of *B. typhosus* broth. The strain selected for this purpose was one which, from previous testing, was known to acquire the power of fermenting dulcite more slowly than the majority of strains. All the cultures were incubated at 37° C.

The time taken to produce acidity in the original beakers and tubes is given in Table I, and it will be noted that no test-tube culture became acid during the period of observation (twenty-six days).

After eight days' growth subcultures were made from each tube and each beaker into 6 c.cm. quantities of dulcite-peptone water contained in ordinary test tubes. The times taken to produce acidity in these subcultures are given in Table II. Again no subculture from the original test tubes became acid.

After a further period of seven days—that is, fifteen days from the commencement of the experiment—subcultures were again made from the original beakers and tubes into ordinary 6 c.cm. quantities of dulcite broth. The times required for appearance of acidity are indicated in Table III.

These various tables show that a fermenting race is much more quickly produced by growth of the organism in large quantities of culture medium than in small quantities. If the original small tubes be inoculated with small doses of *B. typhosus* broth and the beakers with large doses, the sizes of these doses being related to each other as the volumes of the dulcite broths to be inoculated, the fermenting race is again found to arise more quickly in the large quantities.

The original small tubes never developed an acid reaction, and their subcultures likewise did not, within the limits of observation. The large cultures in beakers developed an acid reaction in every case by the fifteenth day. Their first subcultures showed three with a full acid reaction by the tenth day. In the second subcultures from the original beakers nine became fully acid in reaction by the sixth day.

The experiment above detailed was led up to by a preliminary experiment performed with a *B. typhosus* strain which was known to acquire the power of fermenting

dulcite more quickly than the above-mentioned strain. The details of this earlier experiment were as follows: 50 c.cm., 20 c.cm., and 5 c.cm. quantities of dulcite-peptone water were put up in three series. In each series there were ten such quantities. Every member of the different series was inoculated with the same dose of *B. typhosus* broth. On the tenth day after inoculation all the broths were subcultured into ordinary test tubes containing 6 c.cm. quantities of dulcite broth, and the times required to produce acidity were noted. The results are given in Table IV.

It will be observed that all the subcultures from the initial cultures of 50 c.cm. showed full acidity by the second day. The subcultures from the 20 c.cm. quantities showed four with a full acid reaction on the second day. In the case of the subcultures from the 5 c.cm. tubes not one showed a full acid reaction on the same day.

We conclude, therefore, that, other things being equal,

TABLE I.

Beakers. 1	2	3	4	5	6	7	8	9	Control	Days of Observation.	Small Tubes. 1	2	3	4	5	6	7	8	9	Control
–	–	–	–	–	–	–	–	–	–	8th	8th	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	af	–	–	9th	9th	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–		–	–	12th	13th	–	–	–	–	–	–	–	–	–	–
af	–	a f/3	–	–	–	–		–	–	13th	14th	–	–	–	–	–	–	–	–	–	–
	a 1/2	af	a 1/2	–	a 1/3	–		a 1/2	–	14th	15th	–	–	–	–	–	–	–	–	–	–
	af		af	af	af	af		af	–	15th	20th	–	–	–	–	–	–	–	–	–	–
											26th	–	–	–	–	–	–	–	–	–	–

TABLE II.

First Subcultures from Beakers into Small Tubes (6 c.cm.). 1	2	3	4	5	6	7	8	9	Control	Days of Observation.	First Subcultures from Small Tubes into Small Tubes (6 c.cm.). 1	2	3	4	5	6	7	8	9	Control
–	–	–	–	–	–	–	–	–	–	2nd	2nd	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	6th	6th	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	af	–	–	7th	7th	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–		–	–	8th	8th	–	–	–	–	–	–	–	–	–	–
af	–	af	–	–	–	–		–	–	10th	10th	–	–	–	–	–	–	–	–	–	–
	–		–	–	–	–	–	–	–	11th	11th	–	–	–	–	–	–	–	–	–	–
	–		–	–	–	–		–	–	19th	19th	–	–	–	–	–	–	–	–	–	–

TABLE III.

Second Subcultures from Beakers into Small Tubes (6 c.cm.). 1	2	3	4	5	6	7	8	9	Control	Days of Observation.	Second Subcultures from Small Tubes into Small Tubes (6 c.cm.). 1	2	3	4	5	6	7	8	9	Control
a 1/4	–	a 3/4		–	–	–	a 1/4	a 1/4	–	2nd	2nd	–	–	–	–	–	–	–	–	–	–
af	–	af	a 1/2	a 1/2	a 1/2	–	a 3/4	a 3/4	–	3rd	4th	–	–	–	–	–	–	–	–	–	–
	–		af	af	af	–	af	af	–	4th	6th	–	–	–	–	–	–	–	–	–	–
	a 1/2					a 1/2			–	5th	11th	–	–	–	–	–	–	–	–	–	–
	af					af			–	6th											

Af=full acid reaction. *A*=acid. The fractions indicate grades of partial acidity.

TABLE IV.

	1	2	3	4	5	6	7	8	9	10	Day of Observation.
Subcultures from tubes of 50 c.cm.	A.f.	A.f.	A.f.	A.f.	A.f.	A.f.	A.f.	A.f.	A.f.	A.f.	Second day.
Subcultures from tubes of 20 c.cm.	A.f.	A.1/2	A.f.	A.1/2	A.1/2	A.1/2	A.f.	A.1/2	A.f.	A.1/2	Second day.
" "		"		"	"	"		"		A.f.	Fourth day.
" "		"		"	"	"		A.3/4			Fifth day.
Subcultures from tubes of 5 c.cm.	A.1/2	A.1/2	A.1/2	A.1/2	A.3/4	A.1/2	A.1/2	A.1/2	A.1/2	A.1/2	Second day.
" "	A.1/2	"	"	"	A.f.	"	"	"	"	A.3/4	Fourth day.
" "	A.f.	A.1/2	A.1/2	A.1/2		A.1/2	A.1/2	A.1/2	A.1/2	A.f.	Fifth day.

the larger the culture the sooner will a new race be selected out. This more effective selection from a large population is mainly due to there being more extreme variants from the mean in the large population. The explanation is not chiefly to be sought in the fact that in the larger cultures a few more generations are required to produce the same population per cubic centimetre. By inoculating into constant volumes of dulcite broth seedings of *B. typhosus* of different size the number of generations required to produce the same population per cubic centimetre is altered, but the tubes with small seedings do not give regularly earlier acidity than the tubes with large seedings.[1]

Since bacterial selection can be conducted more efficiently from a large population, it would appear probable that the selection of variants by animal passage would, other things being equal, be more successful in a large rather than in a small animal.

CONCLUSION.

The rate of selection of dulcite variants of *B. typhosus* varies directly with the size of the population from which the selection is made.

REFERENCE.

[1] Penfold (1911): Studies in Bacterial Variation, *Journal of Hygiene*, vol. xi, p. 30.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TOXIC SYMPTOMS AFTER TAKING A PROPRIETARY PILL.

IN the JOURNAL for May 11th, 1912, and in subsequent numbers correspondence took place on green urine due to a proprietary pill, and while in two cases it was stated that those who took the pills showed symptoms of illness which might be referable to the pills, the majority of the cases seemed mainly interesting from the fact that green urine was passed. The correspondents at that time all wrote from parts of England. The proprietors of the pills are now evidently transferring their energies to Scotland, for besides the following case, which is of interest, a practitioner in the town has informed me that one of his patients has been taking the pills without, however, showing any symptoms except the green urine.

J. M., a mason, had for some time felt a pain in the back on rising in the morning, but this passed off soon after starting work. He thought his kidneys were affected, and when a sample of kidney and bladder pills was handed in at his house he thought he would give them a trial. On October 14th he took one pill before dinner, one before tea, and two before going to bed, as directed on the box. That evening on passing urine he noticed that it was greenish, but as the instructions informed him to expect this he was in no way alarmed. On October 15th he took one pill before breakfast, and now noticed small round spots like "heat spots" appearing on the front and back of the neck. Another pill was taken before dinner, and by this time the spots had greatly increased, appearing now on the face, and the neck had become so swollen that he had to take off his collar and put on a muffler before he could go out to his work. He began to think that the pills might be the cause of his condition, as previously he had been in good health except for the slight backache. He had taken six pills in twenty-four hours, and now ceased taking them. By evening the eyelids were swollen and felt stiff and heavy, the right eye being almost closed. The spots were still present on the face, neck, and upper part of the chest, and felt hot and itchy. A poultice with vinegar and water added was applied to the neck and diminished the swelling, but on October 16th his face had such a blotchy and puffy appearance that he could not go to work. He called to see me on the evening of October 17th, and the red papular eruption was very marked on the face and neck, while below both the lower eyelids there was marked oedema, the skin pitting on pressure. Several of the papules were scaly on top, while in various places on the face and neck there was a fine desquamation. Since he had left off taking the pills his condition had improved, and by October 19th all trace of the eruption or oedema had disappeared. The urine two days after ceasing to take the pills had lost its greenish colour, and was in no way abnormal.

Dundee. MARTIN SMITH.

THE RISK OF ECLAMPSIA RECURRING IN A SUBSEQUENT CONFINEMENT.

A VERY personal interest concerning the above impels me to sound a note of warning to those of the profession who are especially concerned in obstetric practice, and who may be called upon to express an opinion in the matter. For myself, I can never again give a hopeful prognostication, for the following reasons, as exemplified in two recent cases.

CASE I.—Four years ago a lady, aged 36, the wife of a major in the Indian Medical Service, came home to be delivered of her first child. She was advised to fortify herself for the event, somewhere in Scotland for preference, and, accompanied by her husband, she proceeded thither, a sheltered seaside resort being selected as the temporary home. Analyses of the urine were made from time to time, and all went well until early in the seventh month, when eclampsia gripped her with great suddenness and violence. Thanks to a most excellent village doctor—one of God's good men—and to his promptness in securing the best of skill from Edinburgh, she was spared on this occasion, though convalescence was very protracted. Eighteen months later she was back in Bengal, and in a year, becoming pregnant once more, she was again sent home. Every precaution was taken, nothing apparently overlooked; but, despite every attention and treatment, including Caesarean section, she died in an eclamptic state (at about the end of the seventh month of pregnancy).

CASE II.—A lady, aged 30, daughter of a noted surgeon in a Canadian city, and therefore, as in the case of the former patient, able to secure the best attention, had the same experience exactly as regards the incidence of eclampsia in each of her two confinements, with this exception, that Providence spared her life and that of her infants. Albuminuria in her case was transient during the sixth month of her second pregnancy and absent in her first, save at the crisis. Labour in each instance was, of course, induced and at about the eighth month.

As both the foregoing cases occurred in my family circle, is it any wonder that for the future I shall not have much use for the actuary, nor time for his statistics, and that I shall, should the occasion arise, feel it to be my duty to urge on those interested that there is indeed a very grave danger of a repetition of what might easily lead to irreparable disaster?

Putney. ATHELSTANE NOBBS, M.D.

ATTEMPTED SUICIDE BY DRINKING LYSOL.

ON October 18th I received an urgent call to a patient, aged 63 years, suffering from melancholia, who had swallowed an unknown quantity of lysol. Two days previously I had seen her for this nervous breakdown, and had warned the family to be carefnl and watchful, as she would probably try to take her life. It never occurred to them that she would drink the lysol, which was used for disinfectant purposes, and was placed upon the washstand.

I found her sitting upon the bed, coughing and hawking up frothy, thick mucus; her voice was rough and hoarse, as if some of the fluid had gone into the larynx. The mouth inside was whitish, and the lips excoriated; the characteristic odour of phenol was present. Upon swallowing she made a wry face, and held her hand to her chest as if the act was painful; she was excited and talkative between the spasms of retching and spitting, and informed me that the devil was inside her; nothing I could give her would do her any good—God had given her up, and she could not die whatever she took. She drank the lysol at 3 p.m. The family discovered it at once owing to the smell and the convulsive coughing, and immediately gave her three glasses of milk. This was vomited soon after she drank it, the vomit smelling strongly of lysol.

It was 4.30 p.m. when I first saw her, and, taking into consideration her general condition, the fact that she had vomited the contents of the stomach soon after taking the poison, and the length of time since the act occurred, I did not wash out the stomach, but contented myself with giving her a solution of magnesium sulphate, which she

took after a little persuasion, and evidently with great pain. As her general condition was fair, I left with instructions to call me if there was any change for the worse, and sent round a stimulant mixture to be taken if required.

Next morning I saw her again. She had slept well during the night, and, apart from her mental symptoms, was apparently very little the worse for her escapade. The tongue had a distinct bluish tint, but was not excoriated. I think she had pain in the alimentary tract, but everything was accredited to snakes, devils, and what not by the patient.

The relatives could not be certain of the amount of lysol in the bottle, but apparently the amount taken was about half an ounce. Martindale mentions that lysol is supposed to be less poisonous than carbolic acid. The early and copious vomiting after taking the milk seems to have been the saving clause in this case.

H. KNIGHTS-RAYSON, M.D., M.R.C.S., L.R.C.P.

Bayville, S. Africa.

EMPYEMA IN AN INFANT.

ON March 24th, 1912, I was called to see a baby aged four months who had suffered from repeated attacks of bronchitis.

The symptoms resembled those of abdominal colic, and râles and rhonchi were present in the chest. The temperature was 101°. On March 25th the child was still in great pain and a rectal enema was given. On the following day dullness appeared over the base of the right lung with lessened breathing. The area of dullness gradually increased, and on using an exploratory needle pus was found. Paracentesis was performed, and about 2 oz. of pus drawn off. The next day it was necessary to do a thoracotomy, which the little patient stood well, and a drainage tube was left in the opening.

The baby gradually improved, so that on the tenth day the tube was removed, and the wound healed in a few days.

Since then the child has had an attack of whooping-cough, but is now strong and healthy.

The following are the points of interest in the case:

The age of the patient, the absence of any history of pneumonia, that the symptoms pointed to colic, and that thoracotomy proved efficient.

West Ealing, W. W. G. CUMMINGS, M.B.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

JENNY LIND INFIRMARY FOR CHILDREN, NORWICH.

A CASE OF STRANGULATED INGUINAL HERNIA IN A CHILD OF 18 MONTHS, CONTAINING THE CAECUM AND VERMIFORM APPENDIX.

(By B. B. RIVIERE, F.R.C.S.Eng., Assistant Surgeon.)

As several cases of strangulated hernia in young children have recently been reported in the BRITISH MEDICAL JOURNAL, the notes of the following case, which came under my care, may be of interest:

S. E., a male child aged 18 months, was admitted on July 9th, 1912, the history being that he had had a rupture on the right side since birth, which had now been down for four days. During these four days the bowels had not been open, and for the last twelve hours the child had been vomiting.

On admission the child looked ill, with somewhat sunken eyes and distended and rather rigid abdomen. In the right groin was a tense swelling in the position of an inguinal hernia, irreducible, and with no impulse on coughing.

Two hours after admission the child was anaesthetized, and as the swelling was still found to be irreducible, it was cut down upon. On opening the sac it was found to contain the caecum and vermiform appendix, which were somewhat congested in appearance and tightly constricted by the neck of the sac. The bowel could not be reduced, nor could any more bowel be pulled down until the neck of the sac had been divided. This was done, and the bowel returned to the peritoneal cavity. The sac was then ligatured and removed, the aponeurosis of the external oblique sutured, and the wound closed.

The child made an uninterrupted recovery, and was discharged on August 1st.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

STAFFORDSHIRE BRANCH.

Stoke-on-Trent, November 21st, 1912.

Dr. J. A. CODD, Vice-President, in the Chair.

Cases.

DR. ALLARDICE showed (1) a boy whom he had operated upon for *Chronic middle-ear disease with abscess in the temporo-sphenoidal lobe*; (2) a girl whom he had operated upon for *Lateral sinus thrombosis due to middle-ear disease*, the internal jugular vein having been ligatured in the neck. Dr. Allardice read short notes of the cases, with interesting details of the technique employed, and it was seen that both patients had made a rapid and most satisfactory recovery.

Tuberculin: When and When Not to Use it.

Dr. E. C. MYOTT read a paper on this subject, and showed eight patients whom he had treated with tuberculin. He also gave a lantern demonstration. He said tuberculin should not be given without a clear week's genuine temperatures, taken four-hourly. Three to ten minutes' retention in the mouth might be necessary for an efficient record. If the patient had not sufficient perseverance for this treatment should not be begun. The practitioner should learn to catch the temperature fake, for instance, registering successively the same. Patients should be divided into febrile and afebrile. The afebrile might be passed for treatment. Afebrility did not, however, betoken the absence of a mixed infection. There might be a tox-immunity to the mixed germ which might enter upon a phase of renewed activity during a negative tuberculo-opsonic period. Where febrile, if the patient were only recently ill or worse, rest in bed should materially modify the purely tuberculous infection. If the temperature were satisfactorily falling one could afford to wait until the excessive autoinoculation had ceased before commencing the injections. These should then be of a mild type, B.E. or T.R., of small calibre $\frac{1}{100,000}$–$\frac{1}{10,000}$ c.cm., of sufficient interval, five to ten days. If the pyrexia were persistent it should be noted whether continuous or intermittent in type, or both. The sputum should be examined for complicating bacteria in lung cases. Where present, a secondary vaccine should be prepared. A few cases did well with the exhibition of tuberculin alone. The specificity of the secondary vaccine should be verified before starting the tuberculin. It should be remembered that tuberculin would not cleanse the mouth, empty the rectum, or drain pus pockets. Therefore one should avail oneself of hygienic measures—mouth, lung, and intestinal antiseptics—also prompt surgical assistance. Where treatment had been begun already, it should be suspended upon the advent of a concomitant affection—for instance, acute tonsillitis, influenza. Although hypersensitiveness and immunity were both specific, yet they drew upon the one general fund or treasury of the natural resistance. The patient's interpretation for a reaction, "Caught a cold," should not be accepted unless other members of the household had had one. Every result was not due to tuberculin; one boy had haematuria and lost 5 lb. whilst preliminarily taking his temperatures. Too long a gap should not be allowed between the injections, especially where employing the soluble form; the patient might become hypersensitive. Slight haemorrhage was not an indication for cessation, only

for caution, unless backed up by other signs, subjective or objective. Subjective signs might be the only indications to go upon in chest cases. Objective signs were well to the fore in all surgical types—marked skin reaction and induration, ready temperature response. Tuberculin should not be given to a patient who had got up from bed to come to the doctor's surgery. One could not differentiate the effects of the unwonted autoinoculation and the injection. Febrile cases of all sorts were best started on the treatment in bed at home, hospital or sanatorium. Patients should be treated "socially"; the old ones balanced up the young, and prevented the raw recruits from stampeding in the early stages. One should not allow oneself or the patient to be discouraged by an initial loss of weight. An afebrile should not be turned into a febrile case by overdosage; it was better to run the risk of producing a hypersensitiveness, which sometimes followed the employment of too small doses. One should not attempt the bold finesse of one's teacher when one first began. Dr. Myott's paper was discussed by Drs. RIDLEY BAILEY and FORTUNE, and Dr. MYOTT replied.

Prophylaxis in Eye Work.

Mr. S. MCMURRAY read a paper on this subject. He strongly recommended that endeavours should be made to find the cause of eye troubles. If the exciting cause were found many eye diseases could be prevented or at least limited.

Ophthalmia Neonatorum.—He suggested the use of 1 per cent. $AgNO_3$ in the eyes of all children at birth.

Toxic Amblyopia.—Limitation of the amount of tobacco and alcohol consumed after the age of 40, especially in the case of persons suffering from Bright's disease or diabetes and when the occupation becomes more sedentary.

Cataract.—Prevention should aim at delaying the development of arterio-sclerosis.

Glaucoma.—Prophylaxis should aim at a quiet life, freedom from worry, and an antiarthritic régime.

Eczematous Ophthalmia.—Fresh air, good food, and cleanliness.

Trade Injuries.—The tear passages should be examined in all cases of corneal abrasion, and, if found to be diseased, should be washed out.

Miners' Nystagmus.—Periodic examination would allow of early recognition and so shorten the time of incapacity.

He also recommended the correction of all errors of refraction in these cases.

Mr. McMurray's paper was discussed by Drs. RIDLEY BAILEY, DICKSON, KING ALCOCK, and FAULDS, and Mr. MCMURRAY replied.

Specimens.

Dr. HIND showed a bullet and radiogram from a case in which he had successfully removed a *Bullet from the brain of a boy.* Dr. F. N. COOKSON showed an *Enlarged prostate* removed during an emergency operation in a case of profuse haematuria associated also with vesical calculi. Mr. R. H. DICKSON showed a specimen of *Glioma of the retina* with a section under the microscope.

THE Babies' Welfare Association, which has done good work in New York during the past few months, was permanently organized at a meeting of the Academy of Medicine held on December 12th, 1912. The Association (says the *Medical Record*) is made up of seventy different philanthropic and medical societies, and has for its aim the lessening of infant mortality. Health Commissioner Ernst J. Lederle has been elected honorary president.

THE Carlsbad Medical Society offers a prize for the best essay on the treatment of diabetes mellitus, with special reference to balneotherapy. The judges are Hofrat Dr. Ritter v. Jaksch, of Prague; Dr. Luethje, of Kiel; Dr. Ortner, of Vienna; Dr. Schmidt, of Innsbruck; and Dr. Edgar Ganz, president of the society. The judges may, as they think fit, award either one prize of 5,000 kronen, or two prizes of 3,500 kronen and 1,500 kronen, or three prizes of 2,500 kronen, 1,500 kronen, and 1,000 kronen. The competition is open to medical practitioners of all countries. The essays, which may be written in any language, should be sent in before December 31st, 1913, to the Society of Carlsbad Physicians, Carlsbad, from which any further information may be obtained.

Reports of Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND

SECTION OF MEDICINE.

Friday, December 6th, 1912.

Dr. J. O'CARROLL, President, in the Chair.

Specific Treatment of Pulmonary Tuberculosis.

DR. CROFTON described the treatment of pulmonary tuberculosis by intravenous injections of iodoform dissolved in ether. When, in exceptional cases, this could not be carried out the combination should be given intramuscularly or by the mouth. He thought Szendeffy's formula—namely, iodized peptone, menthol, and radium—was less effective, but was useful sometimes for its tonic effect, and could be usefully used to supplement tuberculin. No treatment of pulmonary tuberculosis was complete unless a course of tuberculin were given to increase the patient's resistance. The best preparation was made by dissolving tubercle bacilli in benzoyl chloride. This was given combined with iodoform by intramuscular injection. The results so far had been very good. Dr. MARY STRANGMAN (Waterford) said that since Dr. Crofton's previous paper had been published she had tried the treatment in two of her cases. The first was one that might have been looked on as a forlorn hope. There were cavities in the left apex, and the right base was the only part of the lungs that could be looked upon as sound. There was loss of appetite, wasting, high temperature, and night sweats and extreme weakness. When the treatment was started she was much struck with the improvement within the first few days—the night sweats were practically stopped and the sputum very much diminished; but, unfortunately, at this stage, in giving one dose very quickly, a cough was brought on, which started a haemorrhage which frightened the patient so much that he would not allow another injection for a week. After this the injections were resumed, and have been kept up since. The sputum has now very much diminished, being about 1½ oz. in the twenty-four hours, the temperature has fallen, and all the other symptoms improved. The treatment was carried on for ten weeks. The second case was that of a young girl. The patient consulted her last May for an attack of pneumonia, which was found difficult to treat. A slow recovery was made, and the patient was sent to the country. When she returned she had reduced in weight, had night sweats, loss of appetite, and a few tubercle bacilli were found in the sputum. Iodoform injections were immediately started. For the first three weeks there was no very marked improvement. This was attributed to a low blood pressure. Her sputum, from being profuse, had now diminished to less than a drachm in the day. Cough was very slight. She still suffered from emphysema, but her case was a very hopeful one. Dr. MELDON had tried the treatment in four cases; in each case the temperature came down, the cough lessened, and the patients appeared much better. The treatment appeared to be efficacious, and in one case he considered the result very good. Dr. NESBITT said he had tried the treatment in one case, and found it did well. The case was one of massive consolidation of the left base in a man aged 30. He was taken into hospital and given thirty-one injections of iodoform, and after three months' treatment his temperature had returned to normal, and had remained so since September last. He increased in weight, lost his cough, and the sputum (which had contained numerous tubercle bacilli) disappeared entirely, although the pulse did not react as he would have wished. He would not go so far as to claim this as the one and only form of treatment, but there was little doubt that iodoform did benefit his patient. Half-grain doses were given in plain solution of ether, and the patient found no bad symptoms, nor did he object to it. Other methods might, he thought, do as much good, but he felt quite justified in trying the iodoform injections in further cases. Dr. MOORHEAD said Dr. Nesbitt touched one very important point—that is, in judging any treatment one should have some idea of the history of the disease. It would, he thought, be admitted that in the natural course all cases

on any form of treatment, and even those not being treated, were subject to considerable variation, and it was only by very careful comparison with a very large number of cases one could form an opinion of the value of a particular form of treatment. He could not help feeling surprised that phthisis was in existence at all, so many remedies had been put forward. He was very much struck with the series of drugs employed in the cases reported, and he was at a loss to know which of them, if any, had a beneficial effect. Iodoform appeared to have a very good effect if any of the three forms of administration suited. He would like to know if a patient who had an opportunity of having first-class sanatorium and climatic treatment consulted Dr. Crofton which form of treatment would he select for him—the sanatorium or the treatment just now advocated. Dr. HAYES said, as his name had been mentioned as having *x*-rayed Dr. Crofton's patients, he would like to make clear his conclusions. The first was a case of enlarged mediastinal glands, and the patient had been previously operated upon for tuberculous glands in the neck. Nothing else could be detected but these enlarged mediastinal glands. After a course of treatment Dr. Crofton had her examined again, and there was a distinct diminution in the extent of the glands. Dr. COLEMAN said he thought the cases narrated could be taken to prove little. The great difficulty was that Dr. Crofton had not mentioned the number of cases in which the treatment was tried; he had not mentioned any bad or fatal results, nor had he said anything about controls. In order to derive any conclusions from the effect of iodoform treatment it would certainly be necessary to have a large number of cases fully set out and the same number of controls, and if the treatment with iodoform then showed marked improvement by comparison something could be said for iodoform. Dr. CROFTON, in replying, said that every one who had used the treatment was pleased with the results. Iodoform had been used in hundreds of cases without any fatal result. The cases reported were not specially picked ones, but were ones which would have been considered suitable for sanatorium treatment. He wanted to emphasize that the combination of iodoform and specific immunization was the ideal to be aimed at. With regard to the selection of sanatorium treatment under climatic conditions or the home treatment as indicated, he would prefer the latter. He did not think he would use controls even had he an opportunity of doing so, as he considered the cases turned out by sanatoriums were quite sufficient for comparative purposes. The hope of the future was in the prevention of the disease and not in cure, and to bring the resistance up to or above normal would be the best preventive.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

AT a clinical meeting on December 18th, 1912, Mr. J. M. COTTERILL, President, in the chair, the following were among the exhibits:—Mr. DENIS COTTERILL: A case of *Congenital subspinous dislocation of the shoulder* in a boy, simulating an Erb's paralysis, and possibly due to some injury at birth. Dr. GEORGE MACKAY: *A haematoma of posterior orbit* in a man, caused by a blow, and cured by a modified Krönlein's operation. Mr. J. W. STRUTHERS: (1) A woman, aged 50, after removal of a segment of the cervical oesophagus for *Squamous carcinoma*, causing isolated stricture behind the larynx. (2) Female, aged 39, after removal of the right kidney for acute suppurative pyelonephritis. Mr. SCOT SKIRVING: Two men, illustrating rapid improvement from severe *Tertiary syphilitic lesions* with neo-salvarsan. In one of these mercurial treatment had produced little benefit, and had been badly borne. Mr. G. CHIENE: A case of *Recurrent pyonephrosis* in a woman, aged 35, treated in the first instance by operation, and followed by the development of stone, which had since been removed. Mr. H. WADE: Two patients illustrating *Plastic surgery;* one of an extensive skin graft on the hand, derived from a "pocket" of the abdominal skin; the other of transplantation of portion of the palmaris longus and cephalic vein to restore the function of the divided extensor longus pollicis. Dr. GULLAND: (1) A case of *Senile chorea* in a woman, aged 51, developing within four months, but preceded by delusions and affection of speech for two years. There was a marked rheumatic history. (2) A case of *Pulmonary abscess* in a man, aged 64; it began as a cold which was followed by pneumonia of the left base. Dr. R. FLEMING: A case of acute *Toxic polyneuritis* in a sailor, aged 24, apparently due to ten days' working with naphtha paint. There was paralysis of extensors of arms and legs, with muscular hyperaesthesia, reaction of degeneration, and delayed sensory conductions. Dr. BOYD: (1) Two cases of *Syphilitic spinal paralysis*, both treated with mercury, and one also with salvarsan, and both still giving a positive Wassermann reaction. (2) A case of *Purpura haemorrhagica* in a man, with haemorrhage from gums, stomach, and intestine; severe attacks of colic, marked joint pains, interstitial haemorrhagic nephritis, and purpuric rash on skin. Dr. JOHN THOMSON: (1) *Oxycephaly* in a girl, aged 14, showing the typical features of exophthalmos, large oblique orbital cavities, defect of cranial ridges, peaked vertex; but without deformities of extremities or mental defect. (2) A case of mild *Cretinism* in a child, aged 9, showing extraordinary growth of thyroid, the weight being doubled in four months, and trebled in thirteen months. Dr. J. S. FOWLER: A case of *Sarcoma of the liver* in a child, aged 9. Dr. E. BRAMWELL: Three brothers, aged 33, 31, and 27, the youngest living members of a family of twelve, showing *Myotonia atrophica;* the leading features were indistinct articulation, bilateral facial weakness, atrophy of sterno-mastoids, weakness of hand movements, the relaxation of grasp being slow and difficult, but carried out more promptly after repetition, weakness of dorsiflexors of foot, no marked atrophy of limbs nor hypertrophy, no fibrillary tremors, tendon jerks diminished. Dr. RAINY and Mr. DOWDEN: A man, aged 47, with *Intestinal haemorrhages* of some weeks' duration, with melancholic and slightly suicidal symptoms. The bleeding was shown by the sigmoidoscope to be from the colon. Lavage with 2 per cent. protargol, followed by saline, brought about complete recovery.

ROYAL SOCIETY OF MEDICINE.

SECTION OF BALNEOLOGY AND CLIMATOLOGY.

AT a meeting on December 12th, 1912, Dr. PERCY LEWIS, President, in the chair, Dr. BAIN, in a paper on *Cholelithiasis*, said the successful medical treatment depended, first, on accurate diagnosis, and, secondly, on clear recognition of the causes operating in each individual case. The possible predisposing causes included bile stagnation, anxiety, worry, and indigestion. Besides microbic infection an additional causative factor must be assumed. Recent work tended to show that gall stones were formed independently of infection. Apart from mechanical effects, such as the passage of a calculus, gall stones did not give rise to pronounced symptoms unless there were an accompanying cholecystitis. The early symptoms varied considerably, and did not usually suggest involvement of the gall bladder, consequently the affection very often escaped recognition. Flatulent dyspepsia was one of the commonest. Others were fullness, distension, and discomfort in the stomach; acidity, heartburn, a slightly furred tongue, occasional pain in the epigastrium coming on from thirty minutes to an hour after meals, induced by special kinds of food; lassitude, heaviness, drowsiness, disinclination for work, and occasionally a feeling of weight or a dull heavy sensation in the right hypochondrium. Often symptoms of intestinal indigestion predominated. Depression of a fleeting character was a frequent symptom, and might be the only one. The true nature of the case was revealed by examination of the liver. That organ might or might not be slightly enlarged, but there was invariably tenderness on pressure in the region of the gall bladder. This tenderness, due to cholecystitis, either preceded the formation of biliary calculi, or was associated with their presence. A normal gall bladder would dissolve any gall stone that was introduced into it under aseptic conditions; hence the principles of treatment were to improve the digestion by adapting the diet to the patient's digestive powers, to foster nutritional efficiency by suitable forms of exercise, to disinfect the biliary passages, and to correct any injurious habits. The rational treatment of a case in the first instance should be symptomatic. When the digestion became fairly normal colalin and urotropin should be administered for several months. The PRESIDENT drew

attention to the fact that nearly all the items of treatment advocated by Dr. Bain acted on the general lines of improving the resistance of the tissues to microbic invasion. The ordering of an annual visit to a spa was a reproach to the efficiency of the treatment there carried out. Dr. SOLLY (Harrogate) said that he considered that once the diagnosis of gall stones was established surgical treatment was the only satisfactory cure. Dr. ACKERLEY (Llandrindod Wells) said that some recent inquiries he had made confirmed the statements of Thudichum and Brockbank as to the rarity of gall stones in animals other than man. In 1,400 necropsies since 1903 made on mammals at the London Zoological Gardens gall stones were found in only 5 cases—twice in ajoutis, once in a spotted cavy, once in a musquash (all four rodents), and once in a wild swine. This evidence tended to show that not bacterial infections, but the artificial habits, especially the food habits, of civilized man were much the more potent factors in the etiology of cholelithiasis. Mr. CAIRNS FORSYTH regarded the treatment of cholelithiasis as entirely surgical. No doubt cure sometimes resulted from escape of the calculi into the bowel, and temporary relief might be obtained by medical treatment, but the dangers of delay were great. To postpone operative interference until complications arose was a procedure which was unfair to both patient and surgeon. Dr. KEAY said that as one who had himself suffered from an aggravated form of the complaint he regarded the description of symptoms given by Dr. Bain as decidedly superior to that found in most medical, and especially surgical, textbooks. The disease was eminently adapted to medical treatment, but there was no universal remedy, and each patient must be treated individually, and in that treatment less consideration should be given to its supposed microbic origin and more to the avoidance of worry, the improvement of digestion, and consequent character of the bile. If proper treatment were adopted his patients entirely recovered, and it was only in very rare cases that operation was called for. Since undergoing treatment in Karlsbad a number of years ago he had been entirely free from all symptoms of the disease. Dr. BAIN, in reply, said that urotropin was excreted in the bile. The reason why he advocated a yearly visit to a suitable health resort was that the causes which lead to the development of gall stones were in most cases not removed by operation. He agreed with Dr. Ackerley that highly-spiced foods and most condiments should be avoided in gall-stone disease. He agreed with Dr. Edgecombe that when a patient obtained complete relief from his symptoms it was impossible to say, without an abdominal section, if the calculi had broken up and disappeared. Regarding the criticism of the surgeons, his point was that they rarely saw the mild cases, consequently their dogmatic statements were based upon the manifestations of the disease in its advanced stage. They surely could not expect every case of cholecystitis, however mild, to submit to an operation.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting on December 19th, 1912, Dr. LLOYD ROBERTS, Vice-President, in the chair, Dr. THURSTAN HOLLAND, in a note on *X-ray diagnosis of gall stone*, said that in three recent cases he had been able to recognize shadows as those of gall stones. Owing to the composition of the stones their greater part was transparent, but they had a crust of lime salts which gave a marked shadow with a transparent centre. He subsequently showed on the screen that the ring of shadow differed from that of a calcareous gland, which resembled a blackberry, and from a renal calculus, which gave a clear, sharp, homogeneous shadow. Dr. T. R. BRADSHAW showed a clerk, aged 17, with *Paralysis of the motor portion of the fifth nerve*, with complications. The earliest trouble was in February, 1912, when he had some weakness of the right leg. In May he was thrown from his bicycle. He had a slight accident bicycling directly after this. His sight was impaired and he had headache. Next day he had diplopia and difficulty in swallowing, with regurgitation of fluids through the nose. When admitted for treatment in June there was paralysis of the right external pterygoid muscle, and the masseter and temporal were weak. There was also lateral nystagmus, especially on looking to the right, diplopia, and the right palpebral fissure was narrower than the left. The right leg, which the patient said was weak, showed absence of knee-jerk. The grasp of the right hand was impaired. There was no pain or interference with sensibility. The palate was unaffected. The pupils and discs were normal. In the past six months there had been slight improvement. The nystagmus was no longer apparent, and there was no regurgitation through the nose. Dr. Bradshaw could give no satisfactory explanation of the lesion. Dr. WARRINGTON thought the lesion might be a vascular lesion in the medulla or pons. Dr. R. J. M. BUCHANAN suggested an early cerebellar tumour, probably medullary. Dr. W. PERMEWAN thought it important that a thorough examination should be made of the condition of laryngeal muscles. In reply, Dr. BRADSHAW said it was difficult to correlate the lesions with the condition of the right arm and leg. Dr. JOHN HAY, in a paper on vagaries of the auricles, said that normally the auricles contracted at regular intervals about seventy times per minute, and each systole of the auricles was followed by a systole of the ventricles. In some cases extra-systoles arose in some portion of the auricular muscle, causing a premature beat of the heart. In another class of case there was paroxysmal tachycardia, the auricle contracted 200 or more times per minute, each auricular systole being followed by a systole of the ventricle. The stimulus to which the auricle contracted was abnormal in site of origin. The onset and cessation of these auricles were sudden; the rate was uninfluenced by emotion or movement. Dilatation was the result and not the cause of the rapid heart action. In a third class of cases there was a condition of auricular flutter; there was greater acceleration of the auricles—the rate was from 250–330 per minute. The stimulus here also arose in an abnormal site. The ventricular rate was 1 to 2, 1 to 3, 1 to 4 of that of the auricles.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on December 11th, 1912, Dr. WALTER SWAYNE, President, in the chair, Mr. HEY GROVES showed a number of specimens and skiagrams illustrating the operative treatment of both simple, comminuted, and compound fractures in experimental work. He also demonstrated some of the practical applications of these experimental results, namely: (1) Various intramedullary pegs, including those which could be removed after healing of the fracture. (2) Apparatus for the treatment of compound and comminuted fractures. Illustrative cases in which these methods had been used were shown. Mr. A. L. FLEMMING demonstrated the use of intravenous ether anaesthesia with the apparatuses of Rood and Schlesinger, and stated that the latter had the advantages of greater simplicity while giving a more certain drop. Dr. WATSON-WILLIAMS and Mr. A. J. WRIGHT gave demonstrations of upper bronchoscopy, and also of the use of the naso-pharyngoscope, showing cases to illustrate the normal and stenosed appearances of the orifice of the Eustachian tube. Mr. F. G. BERGIN demonstrated the appearances seen in the fluorescent screen in a normal individual after a bismuth meal. Mr. STACK demonstrated the use of the gastroscope of Hill and Herschell upon an oesophagus and stomach removed *post mortem*. Dr. J. A. NIXON and Dr. H. W. BYWATERS demonstrated the use of the polariscope in the estimation of sugars. Dr. A. RENDLE SHORT demonstrated a method of estimating the CO_2 content of the blood. Dr. R. S. S. STATHAM showed the method of performing a urinary acidosis estimation, and emphasized its importance in such toxic conditions as eclampsia. Dr. JAMES TAYLOR showed skiagrams illustrating the condition found at varying periods after the administration of a bismuth meal to cases of intestinal stenosis. Professor WALKER HALL and Dr. KAY-MOUAT showed specimens illustrating the internal secretions of the thyroid, thymus, pancreas, and other glands; also some naked-eye specimens of hearts and lungs with blood vessels injected and the tissues afterwards made transparent. They also demonstrated the action of the blood of pregnant women upon placental protein, with the necessary controls, as a test for pregnancy and eclampsia, upon the lines recently suggested by Abderhalden.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

AT a meeting on December 13th, 1912, Professor E. W. HOPE in the chair, a paper on temperatures of school children as an aid to early diagnosis was read by Dr. F. E. WYNNE. It was based on observations made by him with respect to the temperatures of 1,000 school children. The observations were made in the anticipation that they would enable an early diagnosis of cases of measles to be made. About an equal number of boys and girls were examined and they were all considered to be in a normal state of health. About 8 per cent. had subnormal temperatures and about 25 per cent. had temperatures of 99° or above. Of the latter, 6 subsequently developed measles and 3 scarlet fever. Dr. Wynne thought that the systematic taking of temperatures in schools might have an important bearing in connexion with the discovery of tuberculous children. Among the children whose temperatures were above normal nearly one-fourth were found to react to the tuberculin test. In discovering early cases of tuberculosis among school children weight should therefore be attached to the occurrence of even transitory rises in temperature, and temperature observations should be useful in sorting out cases for the application of the more troublesome methods of tuberculin diagnosis. He came to the conclusion that the systematic taking of temperatures in day schools was not likely to be of much assistance in preventing epidemics, but that it might very usefully be carried out with good results in institutions.

Reviews.

BRIGHT'S DISEASE.

IN other departments of medicine, observers are sensible that many older conceptions have had to be revised and on occasions entirely replaced by new ones. The study of bacteriology has brought with it ideas concerning the significance of disease which are effecting a revolution in the outlook of the physician. It is not, therefore, surprising that during recent years very real interest has been taken in the group of cases which constitute Bright's disease and its allies. Judging by a recent book on Bright's disease by a London physician, there is a spirit of unrest abroad due to a fundamental dissatisfaction with the theories held for so many years concerning the mechanism of the various processes which accompany diseases of the kidney. The volume on *Nephritis*,[1] by Professor FISCHER, of Cincinnati, founded on his Cartwright Prize Essay for 1911, demands careful attention, and we feel it a duty to our readers to briefly refer to the important problems raised by Dr. Fischer and to the ingenuity and learning which he has brought to bear upon them. Bright's disease may be due to a number of agents reaching the kidney through the blood stream and leading to alteration of the renal parenchyma; the alteration of the parenchyma leads to a loss of the proteins of the plasma, and albuminuria results. This, however, does not explain how the poisonous agents affect the parenchyma nor why it is that though albuminuria results there may be also dropsy, cardiac hypertrophy, anaemia, etc. Nor do we know the exact nature of the toxins which operate on the kidney, although of late years Ascoli and others have been at pains to bring them into line with Ehrlich's lysins. Dr. Fischer believes that the harmful agents which bring about so many of the changes with which we are familiar in kidney disease are acid bodies; his views are supported by experiments made with acids such as hydrochloric, but he does not assume that ultimately it will be shown that the acid agent is of this nature; it may, for instance, be some acid body such as is developed in the katabolism of protein. Interesting as is this theory of the harmful effect of acid bodies, even more striking is Dr. Fischer's contention that the albumen escaping by the urinary tract in this disease is not derived from the blood at all, at any rate directly, but from the renal parenchyma. The experiments described certainly support Dr. Fischer's thesis. He gives details of the experiments which show how important is the presence of acids or various salts in determining whether such bodies as gelatine or fibrin when placed in water will merely swell up (that is, assume the "gel" state) or actually become dissolved (that is, assume the "sol" state). Then follow ingenious experiments on animals showing the effect of the same acids and salts upon the renal epithelium, and how this tissue, existing naturally in the "gel" state, is as a result of the experiments made to assume the "sol" state, and as such is responsible for albuminuria. An important conclusion from the experiments is that the "sol" state of the renal epithelium is remediable; it can be made to reassume the "gel" state, and the albuminuria then ceases. This principle established experimentally suggests a line of treatment the details of which we commend to the reader's notice. If Dr. Fischer's views are correct, then the theories of French workers elaborated during recent years, which have led to the belief that sodium chloride is a cause of the dropsy met with in kidney disease, can no longer be maintained. Dr. Fischer is quite well aware of these views, and meets them with arguments which are reasonable. Whatever the ultimate fate of Dr. Fischer's theory as to the possibility of albuminuria being really due to actual loss of parenchyma protein instead of plasma protein, he has brought forward a view which deserves attention and consideration; it is in harmony with views developed in this country which have attributed the changes met with in renal disease to the absorption (not extrusion) of the renal cells into the system.

Dr. HORST OERTEL'S lectures on the morbid histology of Bright's disease,[2] delivered in the Russell Sage Institute of Pathology, are published in a handsome and well illustrated volume. The author states in the preface that he has attempted to emphasize the relations of the histological facts, and to reconstruct the whole as a unit of interwoven processes, a method of treatment which, so far as his knowledge goes, does not exist in English literature. We cannot follow him here, for in the London schools, at all events, morbid anatomy, macroscopic and microscopic, has never been divorced from pathology and clinical medicine. There are other remarks in the preface which would come with more grace from some one else; for example, "a spirit of anatomical renaissance, therefore, permeates these lectures." This leaves so little to the reviewer. One more grumble about the adjectival terminations. Words such as "pathologic," "anatomic," and the like we understand, and there is much to be said for them. But when, in the same sentence, "pathologic" is used once, "pathological" twice, and "anatomical" twice, whilst in another "anatomic" is used, we venture to suggest that these little points are not beneath the notice of a microscopist. The first lecture contains an interesting historical summary ranging from Ætius, who concluded, between 300 and 400 A.D., that certain cases of oedema and anasarca were associated with hardened kidneys, to the classical observations of Richard Bright. The minute anatomy of Bright's disease may be said to have been put on a sound basis by Henle in 1841 to 1847. Then, as now, the gaps in the knowledge of the histology and physiology of the healthy organ gave the chief opportunities for wrong conclusions as to pathology. No one can deny that the nomenclature of nephritis has been far from satisfactory. The author has no qualms in breaking with many old terms, such as "parenchymatous," "interstitial," "diffuse," which have been used in differing senses. When he also discards "acute" and "chronic" on the ground that they do not precisely describe the time limit of a nephritis, we feel, whilst appreciating their want of significance in the laboratory, that at the bedside these terms mean much. He asks, When does an acute nephritis become chronic? We may ask in reply, When does East become West? There is no precise answer; yet the expressions are full of practical meaning. The author classifies the chief forms of nephritis as simple, degenerative, exudative, haemorrhagic, proliferative, degenerative and productive, and atrophic. The simple nephritis occurs in fevers and toxic states. When desquamation and proliferation of the epithelium are marked, and turbid fluid can be squeezed

[1] *Nephritis, an Experimental and Critical Study of its Nature, Cause, and the Principles of its Relief.* By Dr. Martin H. Fischer, Eichberg Professor of Physiology in the University of Cincinnati. First edition. New York: John Wiley and Sons; London: Chapman and Hall, Ltd. 1912. (Demy 8vo, pp. 212; figs. 31. Price 10s. 6d. net.)

[2] *The Anatomic Histological Processes of Bright's Disease, and their Relation to the Functional Changes.* By Horst Oertel. Philadelphia and London: W. B. Saunders Company. 1910. (Roy. 8vo, pp. 227; 46 Illustrations. 21s.)

out of the medulla, the nephritis is described as "proliferative." This is Virchow's catarrhal nephritis. The degenerative and exudative nephrites are the result of intense general intoxications and infections, including the septicaemias and pyaemias. The degenerative changes are regarded as the passive features of the inflammation, and are contrasted with the reactive, proliferative, and exudative phenomena. In the fourth lecture, which may be read with much interest and profit, the productive changes following degenerative and exudative nephritis are described. The significance of recent work on autolysis and on the chemistry of the lipoids or phospholipines is made clear. The last lecture treats of productive nephritis, which is usually spoken of as "chronic interstitial nephritis." Wilks and Grainger Stewart, leaving Bright's uniform view of the whole nephritic process, regarded the large white and the small granular kidneys as independent affections. The modern tendency has perhaps been toward the older view. The author believes that there is no essential anatomical difference between any of the changes in productive nephritis and those observed in the other forms; but that contracted kidneys differ from one another, chiefly as regards the mode of origin and development of the change, either, for example, from a diffuse inflammation or from one of a circumscribed patchy, creeping type. Hence, the kidney of productive nephritis offers the greatest variety of pictures. The histological features of each type of disease are clearly described and beautifully illustrated. Nevertheless the author fulfils his promise to treat of the pathological processes as a whole, and does not confine himself to microscopic detail. These are good lectures, full of information, clearly written, and we can recommend them.

The monograph on the morphology of renal secretion[3] by Dr. SUZUKI, of Japan, is introduced by a few words by Professor L. Aschoff, in whose laboratory the work has been done. Its novelty consists in the combination of "vital staining" by intravenous injection of carmine solution during life with the use of various methods by which the structure or function of the kidney is affected. We found descriptions of effects on the kidneys of uranium, corrosive sublimate, cantharadin, arsenic, and potassium bichromate; in haemoglobinuria, in hunger and thirst, after injection of urea and uric acid; after administration of lactose, caffeine, potassium chlorate and oxalic acid; after clamping the renal artery, and after unilateral extirpation of the kidney. The changes observed are described in minute detail, and the descriptive sections are followed by summaries of the conclusions to be drawn from the facts disclosed. The highest praise should be given to the plates, which give twenty-one beautifully coloured drawings of the microscopical appearances. We commend Dr. Suzuki's book to the attention of all interested in the minute anatomy and physiology of the kidney as observed in various small rodents under normal conditions and as altered by the various agencies already mentioned. The method of staining *intra vitam* appears to be most successful.

FOOD AND DIETETICS.

DR. WILLIAM TIBBLES'S work on *Foods: Their Origin, Composition, and Manufacture*,[4] gathers together into one volume a large amount of information on this important subject from a variety of sources, including a good deal of matter from recent issues of technical and scientific journals. The point of view throughout is mainly that of the dietician—that is to say, the composition and food value of the various alimentary substances dealt with are most fully described, the source and manufacture being as fully stated as is necessary for a discussion of the composition; food analysis is only touched on incidentally. The author has not confined himself to the foods in most common use in European countries, but has made a comprehensive compilation of facts; due balance, however, is maintained between the more and less important matter, so that valuable information is not smothered under a mass of statistics, as sometimes happens. The book is divided into five parts. The first contains some seventy pages, and deals with the chemistry of first the elements, and then the proximate principles of which foods are composed. This preliminary matter disposed of, the other four parts are devoted respectively to foods derived from the animal kingdom and from the vegetable kingdom, condiments and spices, and beverages. The first part of the book necessarily presupposes a fair amount of general chemical knowledge on the part of the reader, and it is, perhaps, easier to find statements to which exception might be taken here than in the main part of the work. For example, the author repeatedly uses the term "ion" as though synonymous with "radical," speaking of methylene $CH_2=$, methine $CH=$, and the imino group $NH=$, etc., as ions; "ethyl alcohol would be *reduced* to an aldehyde" occurs; the term "protein" is defined as including all the nitrogenous compounds of animal or vegetable bodies except the meat bases and amino-compounds such as leucin or asparagin, although in subsequent pages proteoses, peptones, etc., are excluded from the group of proteins. Such faults as these, however, are not sufficient to mar the clearness of the text to a serious extent. The subsequent parts of the book, dealing with foods under the headings mentioned above, deserve high praise for the large amount of valuable information brought together. On controversial matters the author avoids dogmatism and presents both sides. In regard to the so-called "standard bread," after fairly stating the advantages claimed for it, he adds:

> The presence of the cerealin and germ in the flour really increases the total percentage of nitrogen and phosphorus very little. Adequate reasons have been given for their exclusion. It remains for the advocates for their inclusion to show good reasons for doing so, such as will be in keeping with modern physiological knowledge. But at present such reasons are not forthcoming.

The experiments of Hill and Flack on feeding rats with white flour and flour containing germ and cerealin, which were recorded in our columns, are discussed, and the view is expressed that a diet almost devoid of cellulose, like fine white flour, is unsuitable for rats, and that this would account for the inferior nutritive properties shown by it in these tests. Dr. Tibbles's book will certainly take a high place among works of reference on the subject of diet.

We have several times suggested that a small manual to assist practitioners in the calculation of food values and construction of dietaries would be useful. In supplying this want our colleagues in the United States have taken the lead, for not long ago we had the pleasure of drawing attention to the little book on food values published by Dr. E. A. Locke of the Harvard Medical School, and now we welcome a *Laboratory Handbook for Dietetics*,[5] written by Dr. MARY SWARTZ ROSE of Columbia University. In the preface she says:

> It is the purpose of this little book to explain problems involved in the calculation of food values and food requirements and the construction of dietaries, and to furnish reference tables which will minimize the labour involved in such work without limiting dietary study to a few food materials. . . . Tables are included giving the food value for the hundred-calorie portion which is taken as the standard portion in the sense that it serves as a convenient unit in building up a day's ration to yield a stated number of calories; for the gram, which is the unit of weight for all scientific workers; for the ounce, the common unit of the small family group; and for the pound, the unit of the large family or institutional group. These tables have been in practical use for several years in the author's classes, and their value in relieving the student of monotonous clerical labour has been demonstrated.

As may be expected from this description, the book consists very largely of tables, giving analyses of all the ordinary articles of food used in the United States, showing the proportions of protein, fat, and carbohydrate and their fuel value in calories. In addition there are many other useful tables, such as those of height and weight for men and women, boys and girls at different

[3] *Zur Morphologie der Nierensekretion unter physiologischen und pathologischen Bedingungen.* Von Dr. T. Suzuki, Arzt in Japan. Mit einem Vorwort von L. Aschoff. Freiburg i. B. Jena: Gustav Fischer. 1912. (Roy. 8vo, pp. 252; Abln. 6, Tfln. 6. M. 15.)

[4] *Foods: Their Origin, Composition, and Manufacture.* By William Tibbles, LL.D., M.D. (Hon. Causâ) Chicago. L.R.C.P.Edin., M.R.C.S.Eng., L.S.A.Lond. 1912. London: Baillière, Tindall, and Cox. (Demy 8vo, pp. 950. 18s. net.)

[5] *Laboratory Handbook for Dietetics.* By Mary Swartz Rose, Ph D., Assistant Professor, Department of Nutrition, Teachers' College, Columbia University. New York and London: Macmillan and Co. 1912. (Demy 8vo, pp. 135. 6s.)

ages. Any moderately intelligent person should find no difficulty in constructing, with the assistance of this book, a dietary containing the required number of calories. It should be mentioned that a table is given of the approximate amount of refuse in common food materials as purchased, showing the percentage loss in these, but we miss a good feature of Dr. Locke's book—namely, the effect of cooking, which is often very large, and, unless taken into account, may seriously modify the results of calculation, especially in the case of meat, which may lose a considerable proportion of its fat, and a less, but by no means insignificant, amount of its protein. Undoubtedly if the broth and dripping are eaten as well as the meat there is no loss, but in many cases they are not. Subject to this omission we have nothing but praise for the manner in which Dr. Mary Rose has performed her task.

The Principles of Human Nutrition,[6] a Study in Practical Dietetics, is the title of a useful book by WHITMAN H. JORDAN, the Director of the New York Agricultural Experiment Station and author of a previous work on *The Feeding of Animals*. The author writes in a clear, popular style, and his aim is to show the adjustment of physiological knowledge to a rational system of nutrition "without insisting upon adherence to technical details that are not feasible in the ordinary administration of the family dietary." He makes no claim to write on his own authority, but has digested and served up a readable and useful survey of the conclusions "of those authorities and investigators whose sound scholarship in this field of knowledge is unquestioned." He deals with the plant as the source of human sustenance, the chemical elements and compounds of human nutrition, the digestion of food, the distribution and transformations of the digested food, and the functions of food compounds and laws of nutrition; he then passes on to practical dietetics, the selection and regulation of diet, its relation to varying conditions of life, food economics, special dietetic methods such as vegetarianism and eating of raw foods, the nutrition of the child, the character and food value of such commercial articles as meat extracts, breakfast foods, alcohol, and the preparation, sanitation, and preservation of food. Tables are added giving the chemical composition of all the common American foodstuffs. The lay reader will find much sound information on all these points, and those who have control of the feeding of children, etc., cannot fail to gain much insight into the proper execution of their vocation from the perusal of Mr. Jordan's book. The practical application to daily life is shown by a table contrasting the worth of a meal of bread and honey with one of bread and milk. The uncontrolled child will, of course, prefer the former, while the latter has fourteen times as much fat, three times the mineral matter, over twice the protein, and as much food energy. Those children who are allowed to partake freely of sweets, especially between meals, must not be expected to develop with maximum vigour. Such foods not only are incomplete in themselves, but spoil the appetite for the plainer and more nutritious articles of diet. "Farm animals could not be developed to their best estate in so irrational a system of feeding." Discussing the cost of food, the author says, "certainly the groceryman and the baker contribute to the ease and comfort of housekeeping, but those purveyors of prepared foods must be paid for their services, and heavy cash payments are in this way substituted for home labour. Many families do not realize how much is paid for the distribution and preparation of food before it comes into the house." The enormous waste of food is undoubted, he says, in the United States. "The people probably waste enough raw food materials to properly feed half their number." We should doubt whether the waste is really so very great, for much of it must find its way to the fowl-run or pig-trough. A large part of the population, he says, lives at an expense that is a great drain upon individual and social energy. A simple breakfast at a high-class hotel costs as much as the raw material required to feed a man for three days. The nation "is expending an undue proportion of its activities in paying for expensively compounded and expensively served foods, with a corresponding limitation of the means which might secure larger individual and social values."

[6] *The Principles of Human Nutrition*. By Whitman H. Jordan, New York. London: The Macmillan Company. 1912. (Demy 8vo, pp. 471; figs. 16. 7s. 6d. net.)

THE THEORY OF SCHIZOPHRENIC NEGATIVISM.

In a paper which two years ago ran through four numbers of the *Psychiatrisch-Neurologische Wochenschrift*,[7] under the title of *Zur Theorie des schizophrenen Negativismus*, Professor BLEULER, of Zürich University, discussed the several explanations which had been advanced of the various symptoms collected under the name "negativism." Having found all these theories—psychological and other—either incorrect or unsatisfactory, Professor Bleuler gave the grounds for their rejection, and expounded his own admittedly incomplete explanation. His essay has now been translated into somewhat American English by Dr. WILLIAM A. WHITE,[8] the Superintendent of the Government Hospital for the Insane at Washington, and the author of the admirable *Outlines of Psychiatry*, which forms No. 1 of the same series. The predisposing cause of negativistic phenomena Professor Bleuler finds in: (*a*) *Ambitendency*, which sets free with every tendency a counter-tendency; (*b*) *ambivalency*, which gives to the same idea two contrary "feeling-tones"; (*c*) "*the schizophrenic splitting of the psyche*," which hinders the proper balancing of the co-operating psychisms; and (*d*) a "lack of clearness and imperfect logic of the schizophrenic thoughts in general, which make a theoretical and practical adaptation to reality difficult or impossible."

On the basis of these predisposing causes, as Professor Bleuler considers them, either external or internal negativism may develop. External negativism consists in the negation of external influences, or what one would normally expect the subject to do, internal negativism being the negation in the patient's own mind of his own will, intention, or idea. As to the direct causes, "the autistic withdrawing of the patient into his phantasies, which makes every influence acting from without comparatively an intolerable nuisance," is given as the most important factor, though the "existence of a hurt (negative complex, unfulfilled wish) which must be protected from contact" is given also among other causes of external negativism.

Obviously these do not furnish any exhaustive explanation of negativistic phenomena. Even granting that "ambitendency" and "ambivalency" are distinctive and necessary predisposing causes of negativism—an entirely unwarranted assumption—the cause of the "schizophrenic splitting of the psyche" (surely an unnecessary tautological phrase!) remains unexplained. Perhaps the true explanation is given when Professor Bleuler says, "On close examination the same grounds will be found as causes of pathological negativism as for the negative attitude in health," and later, "with this conduct the patients exaggerate and caricature only one of the usual manifestations of the normal."

By the "negative attitude in health" Professor Bleuler means the resistance and perhaps resentment which the normal man opposes to what he does not wish, either to do, or it may be to disclose. The ordinary man does not wear his heart upon his sleeve, and quickly repels too curious probing of old wounds. This negative attitude may be maintained with full consciousness of its *raison d'être;* or it may depend upon the existence of some deeply buried and long forgotten "hurt"—to use Dr. White's translation—which may yet be laid bare by psycho-analytic methods. In pathological negativism this "hurt" may be imagined and delusional, as, for example, in a case related by Professor Bleuler, when the patient reacted negatively to nearly every request or command, under the delusion that it was desired to hypnotize her. But if this be so, should not the explanation of negativistic phenomena be sought in the source of the delusional frame of mind rather than, or at any rate as much as, in "ambitendency," "ambivalency," and "the schizophrenic splitting of the psyche?"

[7] E. Bleuler, "Zur Theorie des schizophrenen Negativismus," *Psychiatrisch-Neurologische Wochenschrift*, vol. 12. 1910-11. Nos. 18, 19, 20, 21.

[8] *The Theory of Schizophrenic Negativism*. By Professor E. Bleuler, Zürich. Translated by William A White, M.D., Washington. Nervous and Mental Disease Monograph Series, No. 11. New York: The Journal of Nervous and Mental Disease Publishing Co. 1912. (Med. 8vo, pp. 36. Price 0.60 dol.)

Some departments of science are characterized by the tendency to create neologisms, quite apart from necessary technical terms, shibboleths which must be acquired before entering that particular camp. Modern pathological psychology appears to be one of these, and in no recent essay has this tendency been more marked than in this translation. The difficulty of comprehension is increased by a bizarre and entirely original punctuation.

The English reader who desires to become acquainted with Professor Bleuler's views, but does not read German, is advised to purchase a grammar and dictionary and read the original. He will find this the easier way.

THE CLINICAL ASPECTS OF HEART DISEASE.

THE study of heart disease presents a double fascination. To the laboratory worker the interpretation of graphic indications is of absorbing interest, and becomes constantly more so as new forms of delicate mechanism are devised to demonstrate them. To the clinical worker, on the other hand, the evidences of cardiac disorder are constantly presenting new features, which have to be studied as a whole. The interpretation of cardiographic and electro-cardiographic tracings, interesting and enlightening as they are, cannot as yet take the place of clinical experience when treatment and prognosis are under consideration. A purely clinical work has its place therefore alongside of some of the recent records of scientific research, and a small work by Dr. R. O. MOON,[9] dealing with heart disease as it appears to the average practitioner, will be found interesting. As a careful student of all the cardiac literature of modern times his account presents a faithful reflex of the best clinical thought and experience, and his own observations have been sufficiently extended to warrant him in offering them to the profession.

Writing in an easy conversational style, each subject is dealt with in turn by the author, who keeps steadily to his themes of prognosis and treatment.

Recognizing, in common with all experienced clinicians, that cardiac abnormality does not by any means imply cardiac insufficiency, he proves the need for care in prognosis, and the importance of watching the efficiency of the heart's action as shown by the results upon other organs rather than by the way in which the heart is doing the work. Murmurs, abnormal areas of dullness, and even irregular action are not of themselves of importance so long as efficient circulation is maintained. They may serve to put the clinical observer on his guard against possible failure in the future, but they do not prove that present function is imperfect.

In almost every case of heart failure the first line of treatment should be to relieve the cause rather than to strengthen the failing power. The instant use of some form of diffusible stimulant may be necessary, but of far more importance is it to discover and to counteract the functional disorder of circulation which is putting the strain upon the central pump.

Dr. Moon's work brings out all these points into strong relief and, although arranged in book form, it conveys all the interest of bedside teaching, the introduction of illustrative cases and apt quotations combining to form an excellent picture of heart disease from the purely clinical point of view.

AËRIAL CONVECTION OF SMALL-POX.

DR. ALEXANDER COLLIE'S essay on *Small-pox and its Diffusion*[10] deals almost exclusively with the hypothesis of aërial convection. This hypothesis, it will be remembered, was first propounded by Mr. (now Sir William) Power in 1881, as a result of his inquiry into the alleged prevalence of small-pox round the Western Hospital at Fulham; and it supposes that the virus of small-pox can, under certain conditions, be diffused through the air round a hospital so as to infect susceptible persons. During the last few years little has been heard of this hypothesis, because small-pox has not been prevalent to any notable extent. But from 1881 to 1903 it was not infrequently under discussion. In April, 1903, there was a full-dress debate on the subject at the Epidemiological Society; and if the reader will turn to the published account of that debate he will find all that can be said in favour of the hypothesis and most that can be brought against it. We say "most" and not "all," because we have a shrewd suspicion that all the adverse evidence has not been forthcoming, partly because it is by no means easy to obtain, and partly because, when obtained, it may be held (though often unjustly) to reflect on the administration of this or that particular hospital. Consequently we range ourselves with those who hold that the distal transmission of small-pox through the air is not proven, though we are far from thinking it is not possible. Dr. Collie is evidently of the opinion that the evidence he sets out in his book is sufficient to dispose of the hypothesis; but he confines his attention, so far as details are concerned, to the instance of the Eastern Hospital, Homerton, up to the year 1885, when it ceased to be used for small-pox. The evidence he brings forward is concerned almost entirely with the subject of the transmission of infection from the small-pox to the fever and other patients who were under treatment on the same site. But no writer on aërial convection can afford to neglect the evidence which has been gathered since 1885. Moreover, Dr. Collie, though ostensibly arguing against the possibility of aërial convection, is really arguing against, we will not say the possibility, but the probability of the spread of small-pox round a hospital at all. We do not think that he will find many to follow him in this view. In the discussion to which we referred above most of the leading epidemiologists took part; and the majority of them, whatever were their views on aërial convection, were unanimous in the belief that a small-pox hospital is a source of danger to its neighbourhood unless certain rules, affecting the staff especially, are rigidly and invariably enforced. We have little doubt that the question will sooner or later be settled, but we do not think that Dr. Collie's book materially helps us to attain that desired end.

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

THE last few years have seen much progress in the direction of placing the study of physiological chemistry in its true position as a branch of organic chemistry as well as of physiology. Dr. ADERS PLIMMER, in his *Practical Physiological Chemistry*,[11] has aimed at producing a complete handbook of practical work, for which the need had certainly arisen. It is hardly fair to compare older text-books with it, but it will be seen how great the difference is when we mention the scope of the leading sections. The chief groups of organic substances which are the constituents of living matter, or are concerned in vital processes, are first treated. The student begins by separating benzoic acid and purifying it by recrystallization, by the separation of certain mixtures, the determination of boiling-points, melting-points, and molecular weights, by tests for the elements and the quantitative estimation of them. We agree strongly with the author in preferring copper sulphate to potassium sulphate as an aid to oxidation in the Kjeldahl process. As a matter of small detail it might be worth while to say that the crystal should be about the size of a pea; in class work it will be found that the term "small crystal" is not quite definite for men who may not have a teacher at hand at the moment. This section of the book is succeeded by elementary practical studies of the hydrocarbons and their halogen derivatives, of alcohols, esters, ethers, aldehydes, ketones, fatty acids, fats, and carbohydrates; of the action of enzymes, of the cyanogen compounds, amines, amino-acids, amides, purins, aromatic compounds, and the proteins. A short study—perhaps too short—of the common foodstuffs comes next, followed by carefully arranged experiments in the study of digestion, blood, urine, and metabolism. In each section sound practical exercises are given, with pictures of the essential apparatus, every group of experiments being preceded by an explanatory summary of the points involved. The summaries are packed with information, much of which

[9] *The Prognosis and Treatment of Diseases of the Heart.* By R. O. Moon, M.A., M.D.Oxon., F.R.C.P., Physician to the National Hospital for Diseases of the Heart, &c. London: Longmans, Green and Co. 1912. (Cr. 8vo. pp. 121 Price 3s. 6d. net.)

[10] *Small pox and its Diffusion.* By Alexander Collie, M.D.Aberd. Bristol: John Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1912. (Demy 8vo, pp. 58. 2s. net.)

[11] *Practical Physiological Chemistry.* By R. H. Aders Plimmer, D.Sc. London: Longmans, Green, and Co. 1910. (Roy. 8vo, pp. 278; illustrated. 6s.)

has not hitherto been given in works of this class, and are freely illustrated with chemical formulae. A good list of reagents and their strengths and a full index complete this workmanlike volume. Dr. Plimmer's experience as a teacher is a sufficient guarantee for the accuracy of the experimental part of the book. We have no doubt that this is, and will become still more, the book for class work in the subject. We can imagine no better introduction to the study of physiological chemistry.

ENDOSCOPY OF OESOPHAGUS AND STOMACH.

IN a handy little volume of about 100 pages, Dr. CAVAZZA[12] gives a clear account of recent work in connexion with endoscopic inspection of the oesophagus and stomach, with a passing reference to the sigmoidoscope. The illustrations which accompany the text show various endoscopic instruments, and foreign bodies add considerably to the value of the book. As the author points out, in view of the antiquity of the practice of certain jugglers in swallowing swords and other rigid bodies, it was curious that a rigid instrument for passage into, and inspection of, the oesophagus should have been so long in coming as it was. In choosing amongst the various instruments on the market, reference is made with approval to a saying of Professor Moure that the best instrument is the one already in your possession; it is not so much the tool as the man using it. Probably the Brüning instrument is the most generally useful for inspecting the oesophagus. For the very necessary anaesthesia of the pharynx the author prefers cocaine to the newer preparations. Retrograde oesophagoscopy, that is, looking up the oesophagus from an opening in the stomach, may sometimes reveal lesions not otherwise seen. Foreign bodies not giving a shadow to *x* rays may still be detected by the aid of bismuth, if they are in the oesophagus. A brief reference is made to the existence of those imaginary foreign bodies which are so real to patients of a certain type. Gastro-diaphanoscopy and gastroscopy are also discussed, and there are two rather uncomfortable looking sketches of the passage of Moure's gastroscope. The author does not suggest that the oesophagus and the stomach should be rashly and at once explored by endoscopy, and in any case it is well to get the oesophagus fully accustomed to the passage of sounds, bougies, etc., and as far as possible to exclude the existence of aneurysm, ulceration, and other dangerous conditions before going on to the use of the more formidable instruments. But as to the value of skilful endoscopy in suitable cases this book gives sufficient evidence. There is a bibliography at the end.

NOTES ON BOOKS.

MR. W. HARRISON MARTINDALE, Ph.D., has printed in a small volume entitled *Digitalis Assay*[13] the full text of the paper on the subject which he read at a recent meeting of the Pharmaceutical Society. It opens with a comparison of physiological and chemical results, and contains full details, illustrated by a coloured plate, of the colorimetric method of assay which the author has devised. It is claimed for it that it shows whether a tincture is above or below standard, and with certainty an excessively strong or a weak preparation. He finds that selected leaves recently dried will, as a general rule, produce tinctures up to standard, but that in practice variations are so great that one pharmacy may supply a preparation twice as strong as another. The author considers that the ideal conditions for growing digitalis have not yet been ascertained. He found that the most potent leaves were those of second year's plants grown in a sunny exposed situation, and showing no flower spikes.

Professor SCHÄFER has reprinted in a pamphlet the address on *Life: its Nature, Origin, and Maintenance*,[14] which he delivered as President of the British Association last September. The address excited much interest and some controversy at the time, and many of those who then read it in our columns will be glad to have it in this convenient form. Not a little of the controversy was due to a misapprehension of the point of view from which it was written. Its intention, as is expressed in the preface the author has written for this reissue, was to indicate in clear language the general trend of bio-chemical inquiry regarding the nature and origin of living material and the manner in which the life of multicellular organisms, especially that of the higher animals and man, is maintained. It is obvious that life as we know it must have originated at some time; and almost certainly it must have originated on this globe and was not carried to it by some chance meteorite or intraplanetry dust. The statement seems to have excited some opposition, but, as the author says, there can be "no difference of opinion upon this point among scientific thinkers."

Second editions have appeared both of *Primary Studies for Nurses*[15] and *Clinical Studies for Nurses*,[16] the authoress in each case being Miss CHARLOTTE AIKENS, a lady who was formerly Superintendent of the Columbia Hospital, Pittsburg, and other like institutions. The second of the books mentioned we reviewed in detail on its first appearance. In effect it is a heterogeneous collection of papers dealing with pretty nearly every kind of medical and surgical disorder, and the companion volume is of much the same kind, anatomy and physiology, hygiene, bacteriology, therapeutics, dietetics, and cooking being the main subjects. The object in view would appear to be to bring within a comparatively brief compass the information which a nurse might conceivably wish to possess in regard to the strictly medical and surgical sides of her work; but the impression is left that what nurses need to know on the subjects dealt with would be much better acquired by attendance at lectures, supplemented, in the case of the more enterprising, by study of ordinary textbooks.

The fifth edition of *A Handbook for Nurses*,[17] by Dr. J. K. WATSON, contains eighty-six pages more than the original volume, and is stated to have been completely revised, but otherwise it is not materially altered. The first edition we reviewed in detail, and regret to be unable to take any more favourable view of the publication than was then indicated. It is an attempt to supply in one volume an account of anatomy, physiology, emergency and other surgery, midwifery, gynaecology, and pretty nearly the whole range of medical disorders. In the circumstances it is quite natural that the information supplied, though at times surprisingly full, should usually be very brief and often unduly sketchy.

The contents of the thirty-seventh volume of *The Transactions of the Edinburgh Obstetrical Society*[18] are about equally divided between gynaecological and obstetric papers. Included among the former is an elaborate account by Dr. F. J. M'Cann of the technique of the more extensive abdominal operations for uterine cancer, and among the latter is a record of an attempt by Sir Halliday Croom to determine sundry points regarding eclampsia, and more especially whether it exhibits any true seasonal variation. The investigation was based upon the records of the Edinburgh Maternity Hospital; the general conclusion was that eclampsia showed a tendency to increase in prevalence but to be less fatal in its results, and that the factors which have led to a suggestion of seasonal variations are dependent not truly on season but on sudden alterations in temperature and rainfall. The volume contains an account of a conjoint meeting with the Glasgow Obstetrical and Gynaecological Society for the purpose of discussing the effect of the maternity benefit clauses of the National Insurance Act on obstetrical teaching and practice in Scotland.

[12] *L'Endoscopia del Sistema Digerente.* By E. Cavazza. Bologna: N. Zanichelli. 1912. (Roy. 8vo, pp. 98; figs. 35.)
[13] *Digitalis Assay.* By W. H Martindale, Ph.D. Marburg, F.C.S. London: H. K Lewis. 1913 (Demy 8vo, pp. 47.)
[14] *Life: its Nature, Origin, and Maintenance.* By E. A. Schäfer, LL.D., D.Sc., M.D., F.R.S., Professor of Physiology in Edinburgh. London: Longmans, Green and Co. 1912. (Med. 8vo, pp. 36. Price 1s. net.)
[15] *Primary Studies for Nurses: A Textbook for First-Year Pupil Nurses.* Second edition, thoroughly revised. By Charlotte A. Aikens. Philadelphia and London: W. B. Saunders Co. 1912. (Cr. 8vo, pp. 437. Price 8s. net.)
[16] *Clinical Studies for Nurses: A Textbook for Second and Third Year Pupil Nurses, and a Handbook for all who are engaged in Caring for the Sick.* By Charlotte A. Aikens. Second edition, freely illustrated. Philadelphia and London: W. B. Saunders Co. 1912. (Crown 8vo, pp. 569; figs. 189. Price 10s. net.)
[17] *A Handbook for Nurses.* By Dr. J. K. Watson. Fifth edition. London: The Scientific Press, Limited. 1912. (Cr 8vo, pp. 533; figs. 85. Price 5s. net.)
[18] *The Transactions of the Edinburgh Obstetrical Society.* Vol. xxxvii; Session 1911-1912. Edinburgh: Oliver and Boyd. 1912. (Med. 8vo, pp. 353; plates 6; figs. 25.)

BRIGHTON SUSPENSION PIER (ABOUT 1820).

EIGHTY-FIRST ANNUAL MEETING

OF THE

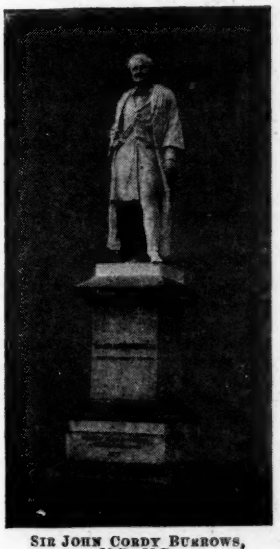
British Medical Association,

BRIGHTON, JULY, 1913.

HISTORY OF BRIGHTON.

(Continued from p. 1624, vol. ii. 1912.)

IMPRESSIONS OF A VISITOR IN 1778.



SIR JOHN CORDY BURROWS, M.P., M.D., Three times Mayor of Brighton.

AN amusing account of Brighton as seen in 1778 through the eyes of a discontented visitor is given in *A Sentimental Diary*, by one J. Ryall.[1] Writing under date August 27th, 1778, he says he left Littlehampton and arrived in the evening at the Crown and Anchor in Brighthelmstone for the first time in his life. "All was confusion and consequence here. The building of Babel and Vanity Fair." On Friday, the 28th, he chronicles that he walked on the Steyne and saw the Assembly Rooms:

> The new one near the Steine is extremely grand, though the cieling and ornaments are by no means so elegant and high finished as those in the buildings called Portland Place in London. . . . Lay at the Crown and Anchor again. Mem. They charge two shillings a night for lodging, too much at least when one lives at the same house. Will remove to a private lodging to-morrow.

On Sunday, 30th, he writes:

> Have surveyed this town thoroughly; like the place well enough, but abominate both townsmen and visitors. The townsmen look upon all strangers as lawful prize, a sort of god-sends as the Cornishmen call wrecks. . . . The townsmen seem to have forgot that the ocean encircles an island; another such season as the present, however, may clear up this mystery, tho' not perhaps to their entire satisfaction. The people who come to bath appear reserved and sullen. Of course unsociable as if the principal complaint laboured under was pride. . . . The principal business going on among the great vulgar is gaming; after all as many sharpers undoubtedly resort to these places, reservedness in general may be somewhat excusable; and yet, must remark, this makes Brighthelmstone a very disagreeable place to me; to select parties it may be pleasurable, but not belonging to any such, am sincerely sorry I left Little Hampton. This town is built on spots in patches, and for want of regularity does not appear to advantage; every one as to building seems to have done what appeared right in his own eyes. Here is no magistracy; if there is an affray the parties must go as far as Lewis, which is much the prettier town to have it settled. Upon recollection this town may be the quieter for having no trading justices resident on the spot. Am since informed a gentleman in the commission of the peace attends here occasionally from Lewis. There can be no antiquities for Brighthelmstone was only a small obscure village, occupied by fishermen till silken folly and bloated disease under the auspices of a Dr. Russel deemed it necessary to crowd one shore and fill the inhabitants with contempt for their visitors.

[1] *A Sentimental Diary, kept in an Excursion to Little Hampton, near Arundel, and to Brighthelmstone, in Sussex.* London: Printed for J. Ryall, in Union Street, Westminster; and sold by W. Lee, Printer, in Lewes, and all the Booksellers and News-Carriers in Town and Country. 1778.

Johnson, the Thrales, and Fanny Burney.

Samuel Johnson's name is associated with Brighton, for in the later years of his life he went there pretty frequently. In 1769 Boswell came to London in the autumn, and found that his illustrious friend was at Brighthelmstone with Mr. and Mrs. Thrale. From that place we find Johnson writing to Boswell on September 9th:

> I do not find that I am likely to come back very soon from this place. I shall, perhaps, stay a fortnight longer, and a fortnight is a long time to a lover absent from his mistress. Would a fortnight ever have an end?

On October 21st, 1776, he writes to Levett as follows:

> Dear Sir,—Having spent about six weeks at this place we have at length resolved upon returning. I expect to see you all in Fleet Street on the 30th of this month. I did not go into the sea till last Friday, but think to go most of this week, though I know not that it does me any good. My nights are very restless and tiresome, but I am otherwise well.

Robert Levett was, according to Boswell, "an obscure practiser of physic amongst the lower people; his fees being sometimes very small sums, sometimes whatever provisions his patients could afford him; but of such extensive practice in that way that Mrs. Williams has told me that his walk was from Houndsditch to Marylebone." Johnson's acquaintance with Levett began about the year 1746, and so high was the great man's opinion of his sagacity that he declared he would not be satisfied though attended by the whole College of Physicians unless he had Levett with him. Levett had a room in Johnson's house, and his death in 1782 was the occasion for some of the best verses the author of *The Vanity of Human Wishes* ever wrote. Every one who knows

anything of the literature of the eighteenth century remembers the poem in which the following lines occur:

Well try'd through many a varying year
See Levett to the grave descend;
Officious, innocent, sincere,
Of every friendless name the friend.

* * * * *

When fainting Nature call'd for aid
And hov'ring Death prepar'd the blow
His vigorous remedy display'd
The power of art without the show.

In Misery's darkest caverns known,
His ready help was ever nigh
While hopeless Anguish pour'd his groan
And lonely Want retir'd to die.

No summons mock'd by chill delay,
No petty gains disdain'd by pride,
The modest wants of every day
The toil of every day supply'd.

His virtues walk'd their narrow round
Nor made a pause nor left a void;
And sure the eternal Master found
His single talent well employ'd.

On July 29th, 1775, we find Johnson writing to Mrs. Thrale:[2]

I am very desirous that Mr. —— should be sent for a few weeks to Brighthelmstone. Air and vacancy and novelty, and the consciousness of his own value and pride of such distinction and delight in Mr. Thrale's kindness would, as Cheney [Cheyne] phrases it, afford all the relief that human art can give or human nature receive. Do not read this slightly. You may prolong a very useful life.

Dr. Birkbeck Hill adds the following note:

The learned, philosophical, and pious Dr. Cheyne, as Boswell calls him, whose books on health and English malady were recommended to him by Johnson. The English malady was melancholy or hypochondria. There is some comfort in knowing that so long ago as 1733 Cheyne pointed out that the conditions of modern life "have brought distempers with atrocious and frightful symptoms scarce known to our ancestors. These nervous disorders are computed to make almost one-third of the complaints of the people of condition in England." (*The English Malady*, ed. 1733, preface, p. 2.)

On August 29th, 1775, we find Johnson writing again to Mrs. Thrale from London:

This sorry foot! and this sorry Dr. Lawrence, who says it is the gout! But then he thinks everything the gout; and so I will try not to believe him. Into the sea I suppose you will send it, and into the sea I design it shall go.

On November 29th, 1777, he writes again to Boswell:

I was not well when he left me at the Doctor's, and I grew worse. Yet I stayed on, and at Lichfield was very ill. Travelling, however, did not make me worse, and when I came to London I complied with a summons to go to Brightelmstone, where I saw Beauclerk, and stayed three days.

In another letter to Boswell, dated December 7th, 1782, he says:

Having passed almost this whole year in a succession of disorders, I went in October to Brightelmstone, whither I came in a state of so much weakness that I rested four times in walking between the Inn and the lodging. By physic and abstinence I grew better, and am now reasonably easy, though at a great distance from health. I am afraid, however, that health begins after seventy and long before to have a meaning different from that which it had at thirty. But it is culpable to murmur at the established order of the creation as it is vain to oppose it; he that lives must grow old; and he that would rather grow old than die has God to thank for the infirmities of old age.

Johnson did not admire the Downs at the back of Brighton. He said a man would soon be so overcome by their dismal character that he would hang himself if he could find a tree strong enough to bear the rope, but that this he would fail to do.

Fanny Burney visited Brighton several times in company with Mrs. Thrale, who was evidently fond of the place, and other friends. The Thrales lived at 75, West Street. On her first visit in 1779 the author of *Evelina* was much annoyed by her own celebrity. She was stared at every time she entered the Assembly Rooms or walked on the Steyn. She went to a big dinner at the Ship Tavern, given by the officers of the garrison, who had their mess there. "It was situated," she writes (in May),[3] "exactly opposite to the inn in which Charles II hid himself after the battle of Worcester, previously to his escaping from the kingdom. So I fail not to look at it with loyal satisfaction; and his black-wigged Majesty had from the time of the Restoration been its sign." In the autumn of the same year she was back again at Brighton, when she writes:

We left Tunbridge Wells, and got by dinner time to our first stage—Uckfield. . . . Our next stage brought us to Brighthelmstone, where . . . the morning after our arrival our first visit was from Mr. Kipping, the apothecary, a character so curious that Foote designed him for his next piece before he knew he had already written his last. He is a prating good humoured old gossip, who runs on in as incoherent and unconnected a style of discourse as Rose Fuller, though not so tonish.

A note to this passage says that Foote had spent his last summer at Brighton. There was a Kipping, a surgeon, at 28, West Street, in 1800, and it was a Dr. Kipping who in 1775 attended Single-Speech Hamilton when he had a serious horse accident on Brighton downs. During this visit Miss Burney met Lady Diana Beauclerk and Mrs. Musters, mother of the man who married Byron's first love, Mary Chaworth. In a letter to Miss Burney, dated Brighthelmstone, Wednesday, July 19th, 1780, Mrs Thrale describes her life there as follows:

I write now from Bowen's shop where he has been settled about three days I think, and here comes in one a man Hopping and asks for "Russell on Sea water" another tripping, and begs to have the last new novel sent him home tonight; one lady tumbles the Ballads about, and fingers the harpsichord which stands at every blockhead's mercy; and another looks over the Lilliputian library and purchases polly sugar cake for her long-legged missy. My master is gone out riding and we are to drink tea with Lady Rothes. After which the Steyn hours begin, and we cluster round Thomas's shop and contend for the attention of Lord John Clinton, a man who could I think be of consequence in no other place upon earth, though a very well informed and modest mannered boy. . . . The players this year are rather better than the last, but the theatre is no better than a band box which is a proper precaution I think as here are not folks to fill even that. The shops are all shut still and a dearth of money complained of that is lamentable. But we have taken some Spanish ships it seems and Laveracruise besides.

In October, 1782, Miss Burney was again in Brighton with the Thrales and Dr. Johnson. On Monday, October 28th, she writes:

At dinner we had Dr. Delap and Mr. Selwyn, who accompanied us in the evening to a ball, as did also Dr. Johnson, to the universal amazement of all who saw him there; but he said he found it so dull being quite alone the preceding evening that he determined upon going with us, for he said it cannot be worse than being alone.

On Saturday, November 2nd, she writes:

We went to Lady Shelley's, Dr. Johnson again excepted in the invitation. He is almost constantly omitted either from too much respect or too much fear. I am sorry for it, as he hates being alone, and as, though he scolds the others, he is well enough satisfied himself; and having given vent to all his own occasional anger or ill humour, he is ready to begin again, and is never aware that those who had been so "downed" by him never can much covet so triumphant a visitor.

Brighton air or society, or the two together, appear to have been too much for Dr. Johnson's temper, for on Thursday, November 7th, Miss Burney writes:

Mr. Metcalf called upon Dr. Johnson and took him out an airing. Mr. Hamilton is gone, and Mr. Metcalf is now the only person out of this house that voluntarily communicates with the doctor. He has been in a terrible severe humour of late, and has really frightened all the people till they almost ran from him. To me only I think he is now kind, for Mrs. Thrale fares worse than anybody. Tis very strange and very melancholy that he will not a little more accommodate his manners and language to those of other people.

The only mention of bathing occurs on the last day of the 1782 visit, which was passed, according to Miss Burney, in the following manner:

Wednesday, November 20th. Mr. and the three Miss Thrales and myself all arose at six o'clock in the morning and "by the pale blink of the moon" we went to the seaside where we had bespoke the bathing women to be ready for us, and into the ocean we plunged. It was cold but pleasant. I have bathed so often as to lose my dread of the operation which now gives me nothing but animation and vigour. We then returned home and dressed by candlelight, and as soon as we could get Dr. Johnson ready we set out upon our journey in a coach and a chaise and arrived in Argyll street at dinner time.

It was at Brighton that Mrs. Thrale met Piozzi, whom she afterwards married, to the indignation of society, but

[2] *Letters of Samuel Johnson Collected and Edited by George Birkbeck Hill.* Oxford. 1892.
[3] *Diaries and Letters of Madame D'Arblay (1778-1840), as edited by her niece, Charlotte Barrett, with preface and notes by Austin Dobson.* London and New York: Macmillan and Co., Limited. 1904.

apparently to her own satisfaction. In her *Autobiography*[4] she gives an account of her first meeting with the Italian singing master:

I was at Brighthelmstone in August, 1780, or thereabout, when the rioters at Bath had driven my sick husband and myself and Miss Thrale (Fanny Burney went home to her father) into Sussex for change of place. I had been in the sea early one morning and was walking with my eldest daughter on the cliff, when seeing Mr. Piozzi stand at the library door I accosted him in Italian, and asked him if he would like to give that lady a lesson or two whilst at Brighton that she might not be losing her time. He replied coldly that he was come thither himself merely to recover his voice, which he feared was wholly lost, that he was composing some music and lived in great retirement. So I took my leave and we continued our walk, Miss Thrale regretting she had lost such an opportunity; but on our returning home the same day, Mr. Piozzi started out of the shop, begged my pardon for not knowing me before, protested his readiness to do anything to oblige *me* and his concern for not being able to contribute to our amusement, but that I should command everything in his now limited power. We parted, and at breakfast the post brought me a letter from the present Madame d'Arblay [Fanny Burney], saying that her father's friend, Mr. Piozzi, was gone to Brighthelmstone where she hoped we should meet. . . . And that I should find him a companion likely to lighten the burden of life to me as he was *just a man to my natural taste*. . . . Mr. Thrale found his performance on the forte-piano so superior to everything heard in England and in short took such a fancy to his society that we were seldom apart except while Mr. Piozzi was studying to compose. . . . His voice strengthened by sea bathing, but never recovered the astonishing powers he brought with him first from Italy.

Royalty at Brighton.

The true begetter of Brighton in a social sense was George IV, but he was not the first royal personage whose name is associated with the place. As mentioned by Fanny Burney in one of the passages quoted, it was from Brighton on the night of October 14th, 1651, that Charles II escaped from England after the battle of Worcester. He lodged or, as our ancestors used to say, lay at a small inn called The George, which stood in West Street. It has since been known as the King's Head. He was taken across to Fécamp in a collier by Nicholas Tettersell. Unlike too many of those who befriended the Merry Monarch in his adversity, Tettersell received a valuable ring and an annuity of £100 for himself and his descendants. His craft is said to have been fitted up and admitted into the Royal Navy under the name of the *Royal Escape*. She mouldered quietly away at Deptford till 1791, when the little that was left of her was broken up for firewood. Tettersell was constable of Brighthelmstone in 1670 and died in 1674. He is buried in the churchyard of St. Nicholas, where there is a tomb with inscriptions in prose and verse.

It was in 1782 that George IV, then Prince of Wales, first visited Brighton. He was the guest of his uncle, the Duke of Cumberland, and was so pleased with the air and with the town that he went there frequently, and for years was almost a resident. Thackeray says:

It is the fashion to run down George IV, but what myriads of Londoners ought to thank him for inventing Brighton. One of the best physicians our city has ever known is kind, cheerful, merry Doctor Brighton.

There the First Gentleman of Europe built his famous Pavilion, aptly described by Hare as "a foolish Chinese palace." The number of minarets made Sydney Smith say it seemed as if the dome of St. Paul's had come down to Brighton and pupped. William Wilberforce said, even more happily: "It looks very much as if St. Paul's had come down to the sea and left a litter of cupolas." Charles Lamb, in his essay on Barrenness of the Imaginative Faculty in the Productions of Modern Art, tells the following story:

The Court historians of the day record that at the first dinner given by the late King, then Prince Regent, at the Pavilion, the following characteristic frolic was played off. The guests were select and admiring, the banquet profuse and admirable, the lights lustrous and oriental, the eye was perfectly dazzled with the display of plate, among which the great gold salt cellar brought from the regalia in the Tower for this especial purpose, itself a Tower! stood conspicuous for its magnitude. And now the Rev. . . . the then admired court chaplain was proceeding with the grace when at a signal given the lights were suddenly overcast and a huge transparency was discovered in which glittered in gold letters—"BRIGHTON—EARTHQUAKE—SWALLOW-UP ALIVE!"

Imagine the confusion of the guests, the Georges and Garters, jewels, bracelets, molted upon the occasion! The fans dropped and picked up the next morning by the sly court pages! Mrs. Fitz—what's her name, fainting, and the Countess of * * * holding the smelling bottle till the good-humoured Prince caused harmony to be restored by calling in fresh candles and declaring that the whole was nothing more than a *pantomime hoax*, got up by the ingenious Mr. Farley, of Covent Garden, from hints which his royal highness himself had furnished! Then imagine the infinite applause that followed, the mutual rallyings, the declarations that "they were not much frightened" of the assembled galaxy.

This joke was in questionable taste, but later the Pavilion acquired an evil reputation which shocked the most loyal among the respectable inhabitants. Moralists shook their heads and said they were happier before Brighton was captured by fashion and the vices which followed in its train. But it was very lively. There were,[5] says an anonymous author, grand reviews on the downs, sham boat fights out at sea, gala nights at the grove, balls and feasts at the castle, fireworks in the Steyn, and raffling at Gregory's library. Gregory often had a thousand names on his lists for half-guinea and guinea tickets. George was called "Brighton's support," but though his presence was profitable to the natives it was very costly to visitors. Some moralist of the time recorded his impressions of the costliness of Brighton in the following epigram:

Say why on Brighton's church we see
A golden shark displayed.
But that was aptly meant to be
An emblem of its trade.
Nor could the thing so well be told
In any other way.
The town's a shark that lives on gold,
The company its prey.

Thackeray, in his *Four Georges*, gives us a specimen of the orgies at the Pavilion:

And now I have one more story of the Bacchanalian sort, in which Clarence and York and the very highest personage of the realm, the great Prince Regent, took part. The feast took place at the Pavilion at Brighton, and was described to me by a gentleman who was present at the scene. In Gilray's caricatures, and amongst Fox's *Jolly Associates*, there figures a great nobleman, the Duke of Norfolk, called Jocky of Norfolk[6] in his time, was celebrated for his table exploits. He had quarrelled with the Prince, like the rest of the Whigs, but a sort of reconciliation had taken place, and now, being a very old man, the Prince invited him to dine and sleep at the Pavilion, and the old duke drove over from his castle of Arundel with his famous equipage of grey horses still remembered in Sussex. The Prince of Wales had concocted with his royal brothers a notable scheme for making the old man drunk. Every person at table was enjoined to drink wine with the Duke—a challenge which the old toper did not refuse. He soon began to see that there was a conspiracy against him. He drank glass for glass, he overthrew many of the brave. At last the First Gentleman of Europe proposed bumpers of brandy. One of the royal brothers filled a great glass for the Duke. He stood up and tossed off the drink. Now, says he, I will have my carriage and go home. The Prince urged upon him his previous promise to sleep under the roof where he had been so generously entertained. No, he said, he had had enough of such hospitality. A trap had been set for him. He would leave the place at once and never enter its doors more. The carriage was called and came, but in the half-hour's interval the liquor had proved too potent for the old man. His host's generous purpose was anwered, and the Duke's old grey head lay stupefied on the table. Nevertheless, when his postchaise was announced he staggered to it as well as he could, and stumbling in bade the postillions drive to Arundel. They drove him for half an hour round and round the Pavilion lawn. When he awoke that morning he was in bed at the Prince's hideous house at Brighton. You may see the house now for sixpence. They have fiddlers there every day, and sometimes buffoons and mountebanks hire the riding house and do their tricks and tumbling there. The trees are still there, and the gravel walks round which the poor old sinner was trotted. I can fancy the flushed faces of the royal princes as they support themselves at the portico pillars, and look on at old Norfolk's disgrace, but I can't fancy how the man who perpetrated it continued to be called a gentleman.

With Brighton, too, is connected the name of Mrs. Fitzherbert, who was really married to George, as is proved

[4] *Dr. Johnson's Mrs. Thrale. Autobiography, Letters, and Literary Remains of Mrs. Piozzi.* Edited by A. Hayward, Q.C. Newly selected and edited, with introduction and notes by J. H. Lobban. Published by T. N. Foulis, Edinburgh and London. 1910.

[5] *Brighton: The Road, the Place, the People.* London: Published (for the proprietors) by J. H. Thomson, 49, Fleet Street. 1862.

[6] This is the same duke of whom it is recorded that he would say: "Next Saturday, with the help of Providence, I intend to be drunk." He attended the funeral of Lord Brougham's mother, and the party was so drunk that the coffin was dropped over a bridge into a river on the way, the loss not being discovered till the party arrived at the churchyard.

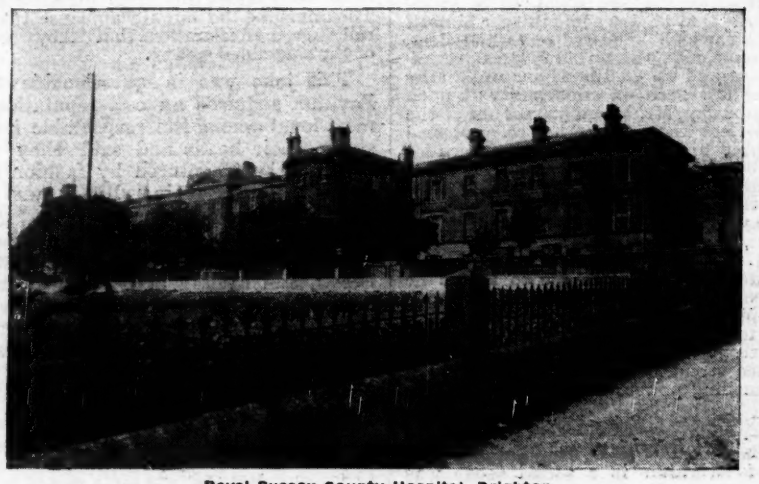
by the documents published by the late Mr. Wilkin in his book, *Mrs. Fitzherbert and George IV.*

William IV did little for Brighton beyond building the Norman entrance to the Pavilion, and Queen Victoria is said to have turned her back upon it for ever because when she walked on the Chain Pier butchers would insist upon following her and kissing the hem of her garment. From that time the Pavilion ceased to be a royal palace and became the property of the town. The building which had cost a million was sold for £54,000.

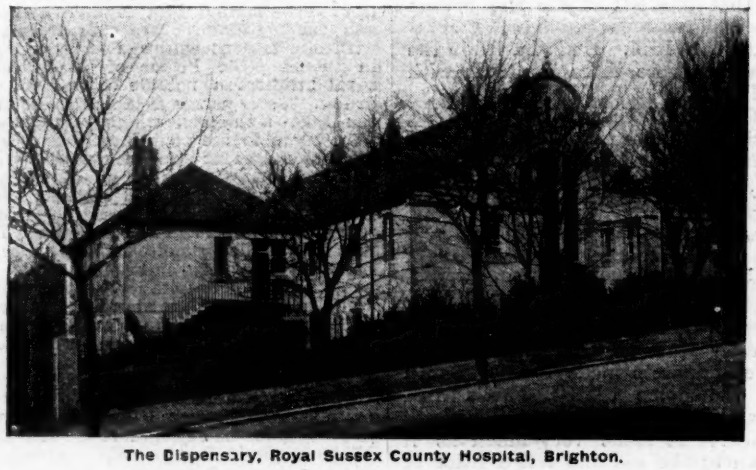
The "Queen of Watering Places."

Brighton has been called the "Queen of Watering Places," and its social attractions are very great. It has many rivals, but none with the special advantage it possesses of being at the point of the south coast nearest to the capital. It is so accessible by railway that a large number of busy toilers in the City and other metropolitan centres of work, make it their residence; hence it is appropriately styled "London-on-Sea." The air is bracing, and it is a favourite place for the completion of the recovery of convalescents and the recuperation of the overworked. A full account of the geology of the soil, and of the meteorology, vital statistics, climatic qualities, and of the indications and contraindications of Brighton as a health resort is given in the *Climates and Baths of Great Britain, being the Report of a Committee of the Royal Medical and Chirurgical Society of London* (Macmillan and Co., London, 1895, p. 363). It may be noted that the mineral spring at Furze Hill to which Relhan attributed such therapeutic virtue, and which was more accurately analysed by Marcet, receives only a passing mention in that work.[7]

In this discursive sketch we have traced the growth of Brighton from a fishing village, the life of which for many centuries was a struggle against the encroachments of the sea, the visitations of storm and flood, and the depredations of foreign foes, to a large and prosperous city. On another occasion we may supply some omissions and describe more in detail its claims to the interest of the visitor who goes thither for pleasure, and its advantages as a health resort.



Royal Sussex County Hospital, Brighton.



The Dispensary, Royal Sussex County Hospital, Brighton.

THE MEDICAL INSTITUTIONS OF BRIGHTON.

The medical institutions of Brighton comprise the Royal Sussex County Hospital, the Royal Alexandra Hospital for Sick Children, the Sussex Eye Hospital, the Throat and Ear Hospital, the Women's Hospital, the Dental Hospital, the Dispensary, and various others of less importance. In addition there are two medical societies—the Brighton and Sussex Medico-Chirurgical Society, and the Brighton Division of the British Medical Association.

The Royal Sussex County Hospital.

The Royal Sussex County Hospital, which is the chief hospital in the county, is situated in the eastern part of the town, and is a very old-established institution, dating, in fact, from early in the nineteenth century. Prior to 1813, a small hospital known by the same name existed in Middle Street, and in its day did much good work. During the year mentioned, however, the Earl of Egremont, then Lord Lieutenant of the county, called a meeting with a view to discussing the advisability of organizing a medical institution with a broader and more comprehensive basis than the one already in operation. This proposition did not meet with immediate favour, and it was not till 1824 that any definite scheme was arrived at. Lord Egremont gave £1,000 towards the first building fund, and Mr. Thomas Read Kemp presented the site and £1,000 towards the building. Lord Egremont laid the foundation stone on March 15th, 1826, and the hospital was opened with three in-patients admitted on the very day of the inauguration on June 28th, 1828. The in-patients for the ensuing twelve months numbered 224, the accidents 13, and the out-patients 72. These figures were more than doubled in two years, and quadrupled within twelve years, the figures for 1840 showing 874 in-patients, 254 accidents, 60 urgent cases, and 1,208 out-patients. In 1839 the Victoria wing was added, and named after Her Majesty the Queen; the Adelaide wing, named after the Consort of William IV., was opened in 1841; the east and west wings in 1853, the chapel in 1856, the enlargement of the west wing in 1867, the museum in 1870, the new library and museum and the Lady Grant block in 1887, and the York building in 1893. This building was so called in honour of the Duke and Duchess of York, whose wedding took place about the time the wing was opened. Since then many improvements have been added to the hospital, such as a home for nurses, a new out-patient department, and a new operating theatre.

The foundation stone of the new out-patient department was laid by the late King (then Prince of Wales) in 1896, and has now, of course, been completed many years. His Royal Highness was not the only member of the Royal Family who has shown an active practical interest in the work of the hospital, as various tablets and inscriptions about the interior bear witness. George IV, William IV, Queen Adelaide, and Queen Victoria have all been among its patrons, Queen Victoria having given £1,000

[7] The following is Marcet's analysis as given in *Brande's Chemistry*:

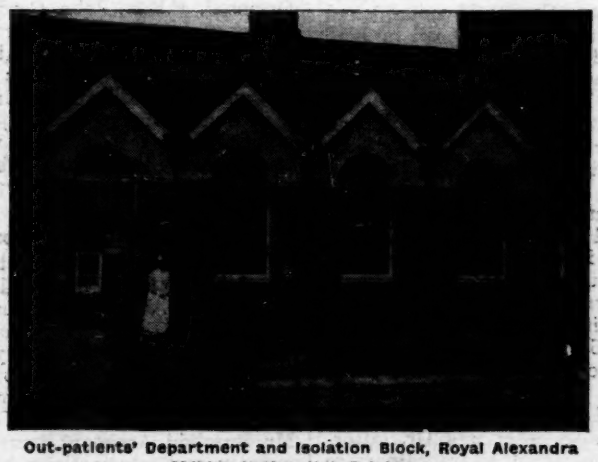
Muriate of soda	3.0
Muriate of magnesia	0.75
Sulphate of lime	4.0
Oxide of iron	1.4
Silica	0.14
Solid contents	9.29
Cubic inches of carbonic acid gas in 100 cubic inches of water ... ... Temperature, cold	9.29

At the present time the hospital has 195 beds. In 1911 2,507 cases were admitted, 1,389 operations were performed in the theatre, and 628 in the surgery; 10,340 out-patients were admitted, 7,083 casualties treated, and 119 patients sent to the convalescent home belonging to the hospital at Ditchling. The staff consists of three consulting physicians, including Dr. Ainslie Hollis, President-elect of the Association, three consulting surgeons, including Mr. T. Jenner Verrall, whose work in connexion with the Association is so well known, a consulting gynaecologist, and a consulting dental surgeon. There are three physicians and three surgeons, with a corresponding number of assistant physicians and assistant surgeons. In addition there are physicians or surgeons in charge of the special departments of ophthalmology, dermatology, electrical and *x*-ray work, and dentistry, as well as two anaesthetists and a medical and a surgical clinical assistant. The hospital serves a very large district indeed, and is one of the largest and most important in the South of England. The fact that on an average 186 of the available 195 beds are occupied is sufficient to prove that the institution is appreciated by those for whom it is intended.

Royal Alexandra Hospital for Sick Children, Brighton.

The Royal Alexandra Hospital for Sick Children.

The Royal Alexandra Hospital for Sick Children is situated in the centre of the town, in the Dyke Road. It was founded in 1868, and was the concurrent and simultaneous work of several benevolent ladies and gentlemen. The patients were at first treated at a house in Western Road, with only three or four small rooms for the accommodation of the inmates. The hospital was attended with immediate and great success, thus showing that the originators were correct in their estimate that such a place was wanted in a town as populous as Brighton. The medical profession was enthusiastic, and such men as Sir William Jenner and Dr. Charles West were warm in its praises. H.R.H. the Duchess of Cambridge and H.R.H. the Duchess of Teck were the first royal patronesses. The number of patients increased to such an extent that it was deemed necessary to enlarge the hospital, and premises were taken which stood on the site of the present building. After being occupied for some time they were found to be insanitary and ill-adapted for hospital purposes, and it was therefore decided, in 1875, to discontinue repairing and patching them, and in 1880 the foundation stone of the present building was laid, with Masonic rites, by the Right Worshipful Brother Sir Walter W. Burrell, M.P., Provincial Grand Master of the Freemasons of Sussex. In July, 1881, the present hospital, consisting of three spacious wards, each containing twenty beds, and the necessary household accommodation, was opened by their Royal Highnesses the Prince and Princess of Wales. The Princess of Wales graciously acceded to the request that the hospital should be called the Royal Alexandra Hospital for Sick Children. In 1887 the hospital work increased so much that an assistant physician was appointed, and later on an asistant surgeon. Later an orthopaedic surgeon and a skiagraphist were appointed, and the operating theatre was enlarged and improved. In May, 1896, H.R.H. Princess Louise, Duchess of Fife, laid the foundation stone of the Nurses' Dormitory, a detached building approached from the hospital by a covered way. In the same year the hospital was visited by the Prince of Wales, who inspected all the wards, and wrote as follows in the visitors' book: "Found the hospital in excellent order.—Albert Edward." In the same month the Princess of Wales also honoured the hospital with a visit. The Princess was accompanied by her three daughters and Prince Charles of Denmark. Noticing the entry made by the Prince of Wales in the visitors' book, the Princess remarked to the matron that she was thoroughly prepared to endorse the Prince's gratifying comment. During the year 1902 the new laundry was built at a cost of over £900, and plans for the new out-patient department were prepared and passed. This building has since been opened and contains, in addition to the usual rooms, a small theatre for minor operations and a well-fitted *x*-ray and electrical room. There is also a room fitted with the appropriate apparatus for the treatment of lateral curvature and other deformities.



Out-patients' Department and Isolation Block, Royal Alexandra Children's Hospital, Brighton.

At the present time the hospital consists of three wards, with 61 beds, with an isolation ward, an operating theatre, an *x*-ray department, and a well-organized out-patient department. The staff consists of two physicians, two surgeons, an assistant surgeon, a dermatologist, a dentist, and a skiagraphist. The number of patients admitted in 1911 was 814, and out-patients and casualties numbered 4,332. The number of operations performed was 351. It is interesting to note, as showing the advance in surgery, that in 1870 ten operations only were performed as follows: 1 tracheotomy, 1 excision of joint, 1 amputation of finger, 2 tenotomies, and 5 operations for removal of bone.

The Throat and Ear Hospital.

The Throat and Ear Hospital, situated in Church Street, Queen's Road, near the railway station, was founded in 1878 by Mr. Cresswell Baber and Dr. Scatliff. It was first started in two small rooms in Grenville Place. It was soon transferred to a house in Queen's Road, and, finally, the present spacious building was opened by the Duke of Norfolk in 1898. The staff consists of four acting surgeons with a dental surgeon. There are twenty beds in the hospital, which are always more or less full. In 1911 the number of out-patients was 1,524, and of in-patients 322. The operations performed under general anaesthesia numbered 622.

The Sussex Eye Hospital.

The Sussex Eye Hospital, situated in Queen's Road, was founded in 1832. The present building was built in 1847, and rebuilt in 1882. At first out-patients only were attended, the number in the year of foundation being 397. In 1911 there were 219 in-patients and 4,926 out-patients. The

staff consists of three surgeons and three assistant surgeons.

The Hospital for Women.

The Hospital for Women, West Street, is a hospital for the treatment of diseases peculiar to women and for attending women in their confinements. The present building contains eight beds, and 176 in-patients were admitted, and 468 out-patients seen in 1911. In addition 1,161 midwifery cases were attended. There is a branch for midwifery patients in Hove. Attached to the hospital are four acting members of the staff, and nurses are trained there for midwifery work. It is intended, as soon as the necessary funds can be raised, to obtain a more suitable sight and building for the hospital.

The Dispensary.

The Brighton, Hove and Preston Dispensary is the oldest medical institution in the town. It was founded in 1809, and the following extract from a letter written in 1849 by Mr. Thomas Attree, the first Honorary Secretary of the institution, is of interest in connexion with its origin:

About forty years ago, in the year 1809, when I was Vestry Clerk to the Commissioners of the town and to the Directors and Guardians of the Poor, and conducting a large practice as a solicitor, was Honorary Secretary to the various fresh schemes for the improvement of Brighton, then in the first blush of its prosperity, and thinking of becoming a town of itself and not an adjunct of Lewes. At this time when I was overworked with business, a stranger, a new client (as I thought) was shown into my office. He was dressed as a quaker, with a ready smile heightened to a short laugh as he noticed my manner in asking his business.

"'Tis not business, friend, and yet it is, for 'tis the business of charity Richard Phillips comes about. I'll tell thee. For the benefit of the sick poor of this town thee must have a dispensary. Thou canst help. Thou dost not say no, so Richard Phillips takes it for 'Yes.'" *And so it was.* I found I had taken upon me another, and not a trifling occupation.

The dispensary was then founded, and the first building used was situated in Nile Street, near the market. The work grew rapidly, and in 1811 it moved to larger premises in North Street, and it was at this time that the scheme of the Earl of Chichester to connect it with an infirmary and an accident ward was commenced. Rooms were fitted up to contain 10 beds, and these wards, it was hoped, would eventually expand into a county hospital. For a short time the institution, now termed the "Brighthelmston Dispensary and Sussex County Hospital," had to go into temporary premises in Duke Street, till in 1818 a much larger building in Middle Street, with accommodation for 20 in-patients and more room to deal with out-patients, was purchased. In 1849 the dispensary was transferred to the present site in Queen's Road, and branches were established later on in Hove and Preston. The Hove branch was improved and the present building opened in 1888; it contains 2 wards of 6 beds each for the reception of accident and urgent cases, so that they may not have to be conveyed four miles to the County Hospital. The work of the institution has increased enormously increased; in 1809 the number of out-patients was 429; in 1911 the number was 9,179. The number of in-patients at the Hove branch in the first year of opening, 1889, was 33; in 1911 it was 196 and 252 operations were performed. In addition to these there were at the three branches 1,216 casualties.

It is interesting to notice that one of the first physicians appointed to the staff of the dispensary was Dr. (afterwards Sir Matthew) Tierney, Physician Extraordinary to His Royal Highness the Prince of Wales, and that during over one hundred years there have been only three honorary secretaries—Mr. Thomas Attree, 1809 to 1835; Mr. Somers Clarke, 1835 to 1889; and Mr. Cecil Somers Clarke, appointed in 1889, the present holder of the office. There is a Samaritan Fund in connexion with the dispensary, which is chiefly used to provide additional nourishment to to those patients who, in the opinion of the medical officers, need it to aid their recovery.

The Lady Chichester Hospital.

The Lady Chichester Hospital and Dispensary for Women and Children which is officered by medical women consists of two portions, the hospital in Brunswick Place with thirty-three beds, and the dispensary in Ditchling Road. The object of this charity is especially to provide early treatment for cases of serious breakdown among poor women and girls, and to afford to poor women of Brighton and the neighbourhood the opportunity of free consultation with doctors of their own sex. That the institution is appreciated is shown in the fact that there were 7,850 attendances during the year 1910 at the dispensary.

The Dental Hospital.

The Dental Hospital is situated in Queen's Road, and has a good staff for the treatment of dental diseases. There is also a Dental Society which meets for the discussion of matters connected with the speciality.

THE BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

The Brighton and Sussex Medico-Chirurgical Society is of old standing, for it was established in 1847. At a meeting of the medical officers of the Brighton Dispensary held at that institution in May, 1847, Dr. King in the chair, it was resolved that it was desirable to establish a Brighton Medical Society. A circular was sent to the members of the profession in the town inviting them to meet and discuss the matter, and as the result of that meeting the Brighton and Sussex Medico-Chirurgical Society was formed, and at the outset forty members joined. It is interesting to note that among them were many men whose sons are now practising in the town. The society was established for the advancement of medical and surgical knowledge among its members, and the first ordinary meeting was held on August 5th, 1847. Dr. King was the first chairman, when Mr. Hingeston read the first paper on the sequelae of measles and scarlet fever.

The society gradually increased in numbers, till at the present time it has a membership of 135. The chairman is Dr. E. Hobhouse, who will be the president of the Section of Medicine at the annual meeting at Brighton this year. Meetings of the society are held monthly when cases are shown and papers read, and, in addition, clinical and pathological meetings take place at the various hospitals in the town. The society possesses an excellent library, which is constantly being augmented by the addition of fresh works. The membership in the past has included many names of note—for example, E. L. Ormerod, F.R.S., John Cordy Burrows, M.P., W. Mellitt Hollis, John Jardine Murray, Dr. Withers Moore (the President at the last annual meeting which was held in Brighton twenty-six years ago), Arthur Newsholme, T. Jenner Verrall, and E. Cresswell Baber. The society is in a flourishing condition, with an increasing membership, and its meetings are well attended by the practitioners in the town and neighbourhood.

THE BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION.

The Brighton Division of the South-Eastern Branch of the British Medical Association was formed in June, 1903, when Mr. W. J. Stephens was elected first Chairman; Dr. W. Ainslie Hollis, Vice-Chairman; and Mr. T. Jenner Verrall, Honorary Secretary. At the present time the Division is one of the most flourishing in the South of England, the membership now exceeding 200. Dr. Ryding Marsh is the Chairman; Dr. Benham, Secretary; and Mr. Burchell, Assistant Secretary. Meetings are held frequently, and great activity has been displayed in medico-political matters, notably in the matter of the Insurance Act, in connexion with the Brighton and Hove Education Committee's school appointments, and medical appointments under the Board of Guardians.

THE mid-December meeting or the United Services Medical Society was held at the Royal Naval Medical School at Greenwich, this being the first occasion on which the society has met at this new institution. The president of the society, Fleet Surgeon P. W. Bassett-Smith, R.N., presided, and Fleet Surgeon Munday gave an account of the medical work involved by the attempts carried on since 1909 to put down the illicit trade in arms in the Persian Gulf.

LITERARY NOTES.

MR. H. K. LEWIS announces that No. 1 of Volume II (January, 1913) of the *Journal of Vaccine Therapy* was published on January 3rd. Dr. W. D'Este Emery has succeeded Dr. Allen as editor. A feature of the new volume will be a monthly review of progress in vaccine therapeutics. It is intended to devote some pages each month, if there be sufficient matter, to short extracts from articles in current periodical literature bearing on the subject dealt with by this journal. Special attention will also be given to applied bacteriology in relation to vaccine therapy, since success in treatment is dependent upon accuracy in diagnosis of the infecting organism or organisms. Record will be made of such improvements and discoveries in bacteriological science as may conduce to this end, particularly in regard to methods of procedure and general technique likely to be of value to the general practitioner.

The November number of *L'Hygiène* contains, in addition to an interesting record of Dr. Rebreyend's experiences in the French hospital at Adrianople, a short article by Dr. A. Maurice on the re-education of the sense of hearing; an account by Dr. "Horace Bianchon" of the present state of public health in France and the notification of tuberculosis; and some excellent advice by Professor George Viau, of the Dental School of Paris, as to the best means of preserving the teeth. Dr. George Rosenthal discusses the physiological exercise of respiration and breathing gymnastics. The illustrations are, as usual, numerous and on the high level of artistic finish to which we have become accustomed in our excellent contemporary.

In the JOURNAL of December 14th we discussed the value of a well sounding name. The paragraph attracted some notice in the lay press, and from comments that appeared it was evident that the justice of our remarks was recognized by lawyers and men of business as well as doctors. Since then, on looking through the recently published life of G. F. Watts, we were interested to find that the great artist abhorred the surname which he had made so famous, doubtless thinking it too common and bourgeois. One of the "devout female sex," by many members of which he was made the object of an innocent worship, found a solution which gratified him. She called him the "Signor," and by that designation he was always known among his friends.

Jules Lemaitre is fond of the conversations of doctors and especially of surgeons, because they know human nature well, as they see men in the circumstances in which they show most clearly what they are. The continued sight of the worst sufferings combined with this knowledge of mankind inspires them with a melancholy and lofty philosophy sometimes brutal and negative, but with great pity at bottom. In his *Contemporains* Lemaître tells the following story, which he had from a well-known doctor, who in 1870 was surgeon-major in the army of Metz. The ambulances were full of wounded. There were terrible operations to be performed, and many of them, and the chloroform had run out. A messenger was sent under a flag of truce to ask a supply of the anaesthetic from the Germans. They did not answer for four days, and then the reply was to the effect that under their articles of war they were not allowed to permit chloroform to be sent into a besieged place, that substance being a derivative of alcohol! The surgeon had only one small bottle of chloroform, and was puzzled how to select the cases in which it should be used. The first patient who came under his hands was a little soldier with a shattered hand. Amputation through the forearm was necessary. The soldier begged for an anaesthetic, and although the doctor explained the situation, he still insisted that he was too weak to bear the operation without an anaesthetic. The surgeon finally gave way, but whilst he was getting ready the little soldier suddenly cried out: "There are others in much worse case than I am. It would be beastly to be a coward!" So he declined the anaesthetic. Another patient was an officer with a terrible wound requiring a long operation. When the surgeon said that he was going to give him an anaesthetic, the captain replied: "Monsieur le Major, you must keep that for those who are not officers."

In the JOURNAL of December 28th, 1912, some account was given of the authority given to bishops under the "Act for the Appointing of Physicians and Surgeons," passed in 1511, of granting licences to practise the art of healing. It may interest some of our readers to learn that the subject was dealt with Dr. Henry Barnes, of Carlisle, in a paper read at Seascale in 1902, which was printed in the Cumberland and Westmorland Antiquarian and Archaeological Society's *Transactions*, Vol. III, New Series, and issued in pamphlet form in 1903. Speaking of the fact that bishops also licensed midwives, he says this was necessary, inasmuch as if there was any danger of the child dying before the priest could be summoned the midwife was bound to baptise it. Before the licence was given, she had to take an oath containing fifteen items. She was to use "pure and clean water only, and not any rose or damask water, or water made of any confection." Dr. Barnes states that in the Norwich Diocese Book there is between 1770 and 1786 a record of licences granted to thirty persons "to perform the office, business, and functions of midwife," and to three persons, two of whom were women, to practise as surgeons, and to others to practise phlebotomy. No licences were granted after 1786. About three years ago, Dr. Pol Gosset of Rheims published in the *Revue Médicale du Nord-Est* an account of the selection of women to act as midwives by the curé of the parish. The following oath was administered to them:

> You promise to God, and you pledge yourself by oath, to assist by night and day the women with child, whether rich or poor, who may have recourse to your aid: and to devote yourselves to the preservation of their infants, as much from religion as in accordance with promise, or for presents, or other consideration whatever. You will not do anything, nor agree to anything being done, to hasten delivery by any extraordinary procedures, nor anything which could injure the health of the mother or child.

The curé was enjoined to choose midwives from among the most respectable and virtuous women of the parish. Any one who had ever been suspected of heresy or sorcery must be rejected. Women chosen for the office were instructed in the ritual of baptism, which they were to administer only in case of necessity.

In the JOURNAL of December 28th, 1912, reference was made to the fact that Jean Jacques Rousseau had been sounded for stone by Frère Côme. It may interest some readers to read Rousseau's own account of the matter as given in *Les Confessions*. Rousseau all his life suffered more or less from urinary troubles and he became convinced that he had stone in the bladder. In 1762 his suffering became so acute that Marshal de Luxembourg, who befriended him, insisted on his seeing Frère Côme. He himself brought the Friar-Surgeon to the patient's bedside, and in Rousseau's words had the courage, "certainly rare and meritorious in a great lord," to remain beside him during the operation, which was severe and prolonged. Rousseau proceeds:

> Nevertheless it was only a question of being sounded, but I had never been able to have this done even by Morand who tried several times, always without success. Frère Côme, who had a hand of unequalled skill and lightness, succeeded at last in introducing a very fine catheter after making me suffer more than two hours, during which I strove to refrain from groaning so as not to rend the sensitive heart of the kind Marshal. On the first examination Frère Côme believed he had found a large stone and told me so. At the second he found nothing. Having tried again more than once with a care and thoroughness which made me find the time very long he declared there was no stone, but that the prostate was scirrhous and of extraordinary size. He found the bladder large and in good condition and ended by telling me that I would suffer much and live long. If the second prophecy is fulfilled as exactly as the first my sufferings are not near their end. Thus after having been treated successively for so many years for twenty diseases which I had not, I ended by knowing that my disease, incurable without being mortal, would last as long as myself. My imagination held in check by this knowledge, no longer made me see in perspective a cruel death in the pains of calculus. I ceased to fear that the end of a bougie which had broken in the urethra long before had formed the nucleus of a stone. Freed from imaginary fears more cruel for me than real evils I endured the latter with greater equanimity. It is certain that since that time I have suffered much less from my disease than I had till then.

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SATURDAY, JANUARY 4th, 1913.

THE UNDERTAKING AND PLEDGE.

A considerable number of practitioners have written to the central office urging that the Association should relieve them of their Undertaking and Pledge, thus allowing them to accept service on panels. As it is impossible at the present time to answer these letters individually, the following may be taken as a general reply. It is evident that in most cases the request for release was made because of sheer economic pressure, and not because the applicant desired of his own free will to accept service.

The position of the practitioner who is a loyal and devoted member of the Association, and therefore anxious to carry out its policy, but who finds himself faced by the fact that some of his neighbours are going on the panel, is indeed a cruel one, and the State Sickness Insurance Committee, when it considered the matter at its meeting on Monday, December 30th, 1912, would have been glad to find some way out of the difficulty which, while maintaining the policy of the Association, would not penalize the loyal practitioner. In the opinion of the Committee, however, the terms of the Undertaking clearly preclude practitioners who have signed it from either making individual arrangements for service under the Act or entering into any agreement which is not in conformity with the policy of the Association. Those who signed the Undertaking and Pledge can be released from their bond only by the deliberate decision of the Representative Body. Only by ignoring the spirit which underlies the whole conception of the Undertaking and Pledge can the binding nature of these documents be denied. There is no doubt that those who signed them did so with the intention of acting with the profession as a body, and, in conformity with ordinary democratic principles, they agreed to be bound by the ruling of the majority. There is no getting away from the fact that the opinion of the majority of the profession, as expressed in the vote of the recent Divisions and reflected in the findings of the last Special Representative Meeting, was strongly against accepting service under the Act under present conditions. Those who now wish to evade their pledge must remember that the present policy of the Association of refusal to accept service under the Act is the consequence of the vote which has recently been given in the Divisions, and it must be assumed that when that vote was given the Divisions acted with a full sense of the probable consequences. There is no doubt that in any district where the profession remains absolutely or even practically united in refusal to serve, those responsible for the provision of medical attendance will be compelled to allow arrangements to be made outside the Act. The threatened whole-time service would be difficult to form not only on account of the controversy with the profession, but because the idea would be repugnant to the average insured person. The Government, which is now refusing to allow persons to make their own arrangements, would undoubtedly be glad to do so if it found that in the whole, or the greater part, of the kingdom panels were not likely to be formed.

Another aspect of this question requires special mention. Some practitioners, fortunately very few, seem to imagine that by resigning their membership of the Association they get rid of their responsibility for the present situation and their Undertaking and Pledge. This is, of course, an entirely mistaken idea. It cannot be too strongly urged upon every member of the Association that whatever the result of the present fight may be, the necessity for a strong combination of the profession in order to defend its interests will be greater than ever under the new conditions of medical practice.

GASWORKS PITCH INDUSTRIES AND CANCER.

Two reports on ulceration of the skin and epitheliomatous cancer occurring in workers employed in the manufacture of patent fuel and grease have been published by the Home Office. Apart from the frequency of epithelioma and ulceration of the corneal surface of the eye in men who handle tar and tar products, and the pathological problem raised, their occurrence is of interest to the medical profession, since both of these conditions, as also the scrotal epithelioma of chimney-sweeps, have been added to the third schedule of the Workmen's Compensation Act. Men who handle pitch or are engaged in the manufacture of briquettes occasionally suffer from warty growths which may ulcerate and become the seat of epitheliomatous cancer, or particles of pitch strike the eyes and induce severe inflammation of the conjunctiva and cornea, which may end in loss of vision. In South Wales there are nearly 1,000 persons employed in the manufacture of briquettes. Epithelioma of the skin is not unknown among grease workers in the north of England, but the largest number of cases is reported among the pitch makers of South Wales. The manufacture of patent fuel is an important industry. Of 1,604,000 tons made in this country 1,449,000 tons are made in South Wales. Sooner or later the skin of the men who follow the employment becomes swarthy, the hair follicles and sebaceous glands become blocked with minute plugs of pitch, shotty particles are felt distributed throughout the skin, especially of the forehead, neck, and forearms; or warts develop, and these ulcerating may become epitheliomatous. Of 246 patent fuel workers examined by Dr. T. M. Legge 51 were found to be affected by warts, while 28 showed signs of having been previously affected. Between July 1907 and 1911, 30 cases of epithelioma were reported for compensation under the Workmen's Compensation Act. It was hoped that the adoption of means for the prevention of pitch dust, provision of better washing accommodation in the works, enforcement of washing before each meal, bathing, and the wearing of goggles and overalls, would reduce the number of cases. These recommendations were not favourably received, either by the employers or by the workmen. The latter objected to the bathing on account of the soreness of the skin caused by contact with the pitch.

Mr. Albert Herbert Lush, barrister, in his report to the Home Secretary on the proposed draft regulations, encouraged manufacturers to do all they

could to reduce dust in the factories. He also expressed the hope that the mischievous agent in pitch might be detected and measures employed for its elimination, believing that if this were done without any injury to the product commercially, it would be the most satisfactory solution of the difficulty. It would appear as if the hope expressed by Mr. Lush were about to be fulfilled. In the BRITISH MEDICAL JOURNAL of April 15th, 1911, there appeared, under the title of "The Gasworks Pitch Industries and Cancer," a suggestive and helpful paper by H. C. Ross and J. W. Cropper, in which it was shown that the cancerous affections were caused by gasworks pitch and not by blast-furnace pitch. There are certain substances known as auxetics, containing amidines, amines, and amido-acids, which are produced in the human body as the result of injury. These have the power of inducing division of leucocytes. Ross and Cropper expressed the opinion that pitch-workers' cancer might be due to the chemical auxetics and augmentors of cell division found in gasworks tar, and that these substances were not contained in blast-furnace tar. Traumatism has for long been regarded as predisposing to cancer. It is probable, therefore, that in cancer "there must be present primarily in the injured site the auxetics which cause benign cell proliferation *plus* augmentors which cause malignant cell proliferation when mixed with auxetics."[1] Either factor is by itself harmless; it is the mixture which is the causative agent. The fact that only one of the two kinds of pitch alluded to causes cancer is of importance as indicating the possible conjoint play of auxetics and kinetics. Ross and Cropper found that these principles are soluble in water. They can be dissolved out of the pitch by washing, but one very important commercial drawback to the grinding and washing of the pitch is that the "steaming power of the briquettes made from such pitch was found to be lowered when tried in a locomotive; the binding quality of the pitch also was reduced. Washing of the pitch is therefore, from a sales point of view, not practicable. The auxetics and kinetics are present in the tar before it is distilled and run into the moulds to set as pitch. Briquette manufacturers dislike the presence of water in tar. Every effort is made to keep the tar free from water, since it forms with the soot in the tar an emulsion which froths up out of the retorts, making distillation a slow process and one requiring the use of more fuel, as well as the employment of more labour.

There is more cancer among the workmen to-day than formerly, a circumstance which some attribute to the retention of anthracene oils in the pitch. Experiments do not support this supposition. The dangerous principles are not anthracene or anthracene oils, but some substance mixed with those, the exact nature of which is as yet unknown. All that can be said is that pitch is more dangerous than tar, and tar more dangerous than coal. The problem is how to distil out of the tar those harmful principles without injury to the pitch commercially. Washing will accomplish this, but the difficulty is how to have it carried out. The subject is one well worthy not only of further inquiry on the part of the Howard McFadden Research scholars, but of experimentation on a large scale by manufacturers. It is the briquette makers and not the owners of gasworks and tar distilleries who would benefit. Tar distillers might object to the recommendation of washing the tar on the ground of expense, but if increased cost is incurred it must be met by raising the selling price of the briquettes. From a health point of view, this first charge might be settled by some international agreement. At any rate, washing of the tar on a large commercial scale seems worthy of trial. It would seem as if, through the labours of Messrs. Ross and Cropper, we were on the eve of ascertaining the true cause of cancer in pitch workers, and of a comparatively easy and effective way of preventing it. Should the Government make further investigations into this subject, the above are the lines upon which the inquiry might well be conducted.

[1] *The Problem of the Gasworks Pitch Industries and Cancer.* The John Howard McFadden Researches. London: John Murray, Albemarle Street. 1912. (Price 6d.)

TALES OF HIPPOCRATES.

DURING a recent visit to the island of Kos, Professor Meyer-Steineg[1] collected several tales of Hippocrates from the lips of a native guide, Jakobus Zaraftis. Although the name of Hippocrates figures extensively in titles of wells and different localities, even the better educated classes in the island seem to possess only a hazy knowledge of its most illustrious citizen. In the legends concerning the great physician he has been confused with, and included among, the numerous saints of the Greek Church. But though he has thus acquired a spurious halo, his miracles are largely concerned with the arts of healing and diagnosis, and in this respect tradition has preserved his dominant claims to fame. The following tales contain some quaint conceits.

A consumptive, whose appeal to Hippocrates for aid was refused, retired in despair from the town to the mountains, where he intended to die. Here he saw a snake vomiting milk after it had swallowed a cow. Thinking that this milk must be poisonous, the consumptive drank it to hasten his end. He then retired to the shade of a tree where he slept for several hours, after which he awoke, hungry and refreshed. He rapidly recovered. On his way home he met Hippocrates, and told the physician how despair had driven him to the mountains, where he had regained his health; but, before he came to the incident of the snake, the physician exclaimed, "How could I provide you with milk vomited by a snake?" Delighted by this display of wisdom, the consumptive seized Hippocrates by the hand, and hailed him as the world's greatest physician. The refusal of Hippocrates to treat the consumptive tallies with the frequently repeated injunction in the *Corpus Hippocraticum* to abstain from treating the incurable. The snake's contribution to the miraculous recovery is interesting as illustrating the not uncommon part played by this reptile as a healing power both in heathen mythology and in the Old Testament.

One day Hippocrates met a shepherdess on the road, and greeted her with the salutation: "May it be well with thee, maiden!" When he met her again on her way back, he greeted her thus: "May it be well with thee, woman!" Struck by the repeated blushes of the girl, a companion of Hippocrates asked him why within the same day he had first called the girl maiden and then woman. Hippocrates replied: "Because earlier in the day she was a maiden, and now she is a woman." His curiosity aroused, the companion addressed himself to the girl, who, weeping, admitted that she had in truth been merely a maiden in the morning, but that she had been assaulted and seduced by the shepherd's son on her return from the flock. When questioned as to how

[1] *Archiv für Geschichte der Medizin*, May, 1912.

he had detected that the girl had been violently seduced, Hippocrates replied: "The gait of a maiden differs from that of a woman." Here, again, Hippocrates appears as an acute observer, not as a healer.

A girl who had been bitten by a snake and who was hastening to obtain medical aid, met a man to whom she applied for guidance to one who would give her an antidote. The man, whose identity with Hippocrates was unknown to the girl, replied, "Before seeking the aid of a physician, seek that of God by making offerings unto Aesculapius and Hygieia." He then lighted a piece of sponge which he applied, still blazing, to the wound. The flesh seethed under this treatment, but Hippocrates endowed the patient with courage and superhuman powers to endure the pain. He also comforted her by assuring her that the offerings were accepted, and that she would be healed of her wound by the servant of God. He then retired to a cleft in a mountain where he found a tortoise which he killed; he caused the patient to drink its blood, and applied its flesh to the burnt spot. The patient was then directed to return home, and to repeat the treatment with tortoise blood and flesh twice, after which she would be healed. In this story Hippocrates is incognito, and he combines mysterious rites with the doubtless equally efficacious procedure of cauterization.

A king's daughter, whose illness was incurable, was affianced to a young man who had spent the whole of one night in a chapel in prayer for the invalid. As he was returning in the morning from this place he met a white-bearded old man carrying a rod, on the top of which was a living snake's head. In its mouth was a sweet-smelling clove flower. After exchanging greetings the old man said: "You have prayed to God for the recovery of your beloved. It is right that you do penance, for your erotic songs have brought her to this pass. But God has taken pity on you, and has sent me to tell you that she will recover." The lover would have kissed the old man's hands and feet, but dared not for fear of the snake. Perceiving this the old man said: "I know how thankful you are for what I have said, but I am sent from God. I am the physician Hippocrates, and in the mouth of my snake there is a flower. This is the remedy for the illness, which is jaundice. Take the whole root of this flower, crush it, and squeeze the juice out of it. Give it her so that she breathes it in by the nostrils, and you will see all the poisons streaming out of them, her colour will again bloom, and all her former strength and beauty will return." Saying this, the old man became invisible. The lover did as he was told, and his prayers were granted. There seems to be considerable confusion in this story, for the reference to a chapel places the incident with those of Christian tradition, while the snake perched on the rod is plainly borrowed from tales of Aesculapius. It is interesting to note that the influence of the emotions on the bile was recognized at such an early date.

The following tale closely resembles those told by Grimm and Hans Andersen: A king's daughter had suffered for many years from snakes, which dwelt within her and devoured her. The king, her father, sent heralds throughout his kingdom to proclaim that he who could heal his daughter should receive many and royal gifts. Numerous physicians practised their arts in vain. A young man, hearing of the prizes to be won, prayed God to show him how to gain them and heal the patient. His prayer was heard, for he met an old man, who told him that "God hears everybody, but everybody hears not God. He has heard you, and has sent me, the physician Hippocrates, to show you the remedy for the patient. Find juicy portulaca, and from its seed press a cupful of oil. Give this to the patient on an empty stomach, and, if she continues to fast till midday, you will see the snakes leave her both from above and from below, and she will recover." The young man seized the old man by the hand, and exclaimed, "I thank God Who has sent thee, O god-like Hippocrates." The old man immediately became invisible, the youth cured the patient, received the promised gifts, and gained thereby the lady of his love. Probably the "snakes" of this tale are not unfamiliar objects with the modern representative of the healing arts.

THE FORTHCOMING REPRESENTATIVE MEETING.

In response to a requisition in due order according to the regulations of the Association a Special Representative Meeting has been summoned to meet in London on Friday, January 17th. The main business of this meeting will be to consider the situation created by the attitude of the Government towards the decisions of the Representative Body, and whether it is desirable to release practitioners from the pledge and undertaking they have given in connexion with the National Insurance Act. The events of the last fortnight have, we are aware, caused much distress to many members of the profession who are loyally attached to the British Medical Association. The contrast between the voting in the Divisions and the reports published with regard to the resolve of very many practitioners in various parts of the country to join the panels with the intention of working the Act has led to much wild talk of a *débâcle*. It is, however, most unwise to draw any such conclusion. It must be remembered that one of the great parties in the State is committed to getting medical benefit under the Act to work, and that its political organs in the press may not consider it obligatory to show both sides of the picture, or to imitate the caution of Mr. Lloyd George, who on Monday declined to express any opinion on the question whether it was not practically certain that a sufficient number of doctors will come forward to work the Act. Any one who wishes to know how far political rancour and party fears may carry a twentieth century journalist towards rivalling the style of the pamphleteers of the eighteenth should read recent issues of the London *Daily News and Leader*. At the time we are compelled to go to press no authoritative information which even approaches completeness is available, and the discussion which Mr. Worthington Evans desired to raise in the House of Commons on Tuesday evening, which might have enabled the Chancellor of the Exchequer to state his views on the situation, could not then come on owing to a blocking motion on the paper. It is reported that in some parts of the country the applications from medical men are numerous enough to form adequate panels; in others it is asserted that their number is large enough to enable panels to be formed which the Insurance Commission will feel justified in regarding as sufficient. On the other hand, in others there are no applications, or they are so few in number that a sufficient panel cannot be formed. The Insurance Commissioners have this safeguard—that December 31st, 1912, was a date selected by them as conveniently fitting in with their arrangements, but any medical practitioner would be at liberty to apply to go on the local panel or fall in with any other provisional arrangement at a later date. There is no cause for panic, and no wisdom in talking about disruption of the British Medical Association. There are no signs of any such catastrophe and the fear is groundless, if only for

the reason that, as the Association is a democratic organization, its policy can be and is determined by the members themselves. The constitution of the Association does not permit action as hasty as some members at this moment would appear to desire. It is true that those who voted at Divisional meetings did not number more than about half of the total number of practitioners in active practice in the United Kingdom, and it is open to any one to put his own explanation upon the abstentions. Some have assumed that the majority of those who did not attend to vote proved themselves by so abstaining to be in favour of the Act. Others contend that the majority of those who abstained did so because they looked upon the result as a foregone conclusion. Neither deduction rests upon any solid basis. Many letters have been received urging that the Association should take a ballot or poll of the profession by post, the writers believing that in that way a much larger vote, more nearly reflecting the opinion of the majority of the profession, would have been obtained. With regard to this, it may be again pointed out that the Association has no constitutional power to take a postal vote. When the constitution was under discussion there was a considerable volume of opinion in favour of taking this power, but the suggestion did not commend itself to the majority at that time. A Division can at its own cost take a postal vote in its own district, but the result would not be binding and would not be the decision of the Division.

LISTER'S EARLIEST OPERATIONS IN FRACTURE.

THE letter by Dr. Theobald A. Palm, published in the JOURNAL of December 21st, 1912, recalling an early case in which Lister operated for badly united fracture—the operation was performed in the Edinburgh Royal Infirmary on December 12th, 1870—and the note appended giving the reference to this JOURNAL and the *Collected Papers* has brought us an interesting letter from Dr. Just Lucas-Championnière who, as is well known, was one of the first surgeons to study and adopt the antiseptic system. Our distinguished correspondent recalls that before the date of the operation above mentioned he had published in the number for January, 1869 (p. 18) of the *Journal de Médecine et de Chirurgie Pratiques*, which he conducts with so much success, a note of a case in which in 1868 Lister had, at the Glasgow Royal Infirmary, operated to correct a badly united fracture. The details of the case, Dr. Lucas-Championnière says, made the greater impression on him because he was present at the operation, and the patient was a Frenchman. The following is a translation of the note published in January, 1869: "We have seen a patient cured in whom the operation would never, Mr. Lister said, have been attempted had he not long before acquired the certainty that he could by his method transform a compound fracture, even one involving a joint, into a simple fracture. The case was that of a man in whom fracture of the lower extremity of the tibia and the two malleoli had been followed by a deviation of the foot outwards and forwards accompanied by displacement on to its inner side. The deformity was maintained by a voluminous and shapeless mass of callus. Four months after the accident Mr. Lister, after incising the soft tissues behind the internal malleolus, covering the parts as he went on with carbolic oil, divided the internal malleolus at its base under cover of a compress soaked in carbolic oil, and, opening into the joint, divided also the external malleolus. Traction was made on the foot, the resistance was felt suddenly to give way, and the foot was brought into position. The patient was dressed with carbolic compresses and plaster renewed every day or every other day. There was no suppuration and no complications. Later on Mr. Lister divided the Achilles tendon, and after that the patient did very well; we have seen him walking in the hospital." In commenting now on this case, Dr. Lucas-Championnière writes: "No record, I think, better shows how Lister attacked the opening up of the site of a fracture, and one moreover involving an articulation," and goes on to express the pride with which he now recalls that he was the first to appreciate and record this case. It may justly be called an epoch-making case, for although there is a discrepancy in the description of the deformity of the foot, his note almost certainly refers to the first case in which Lister cut down on a badly united fracture. As recorded in the address delivered before the Medico-Chirurgical Society of Glasgow and published in sections in the BRITISH MEDICAL JOURNAL during 1868 and early in 1869,[1] he operated on April 11th, 1868, on a man, aged 29, who four months previously had sustained a simple fracture into the ankle-joint, the fibula being broken two inches above the joint and the internal malleolus at its base. When the man came under treatment the foot was useless. It was clear that the foot could not be replaced without breaking through the callus, which could be plainly felt in both bones, and there seemed no prospect of doing this without cutting down and adopting means which, in the case of the tibia, "would necessarily involve opening into the articulation, or producing artificially a compound fracture into the ankle-joint. This," Lister continued, "I certainly should not have dreamed of doing without the aid of the antiseptic system, being well aware of the disastrous course such injuries commonly run under ordinary treatment." He had, however, already had experience of the successful result of the antiseptic treatment of recent compound fractures, and he therefore did not hesitate to operate in the manner described by M. Lucas-Championnière. Healing under a scab, the end which was sought, was delayed by the formation of two sores with exuberant granulations, but these were completely healed on June 4th, the bones having been firmly united a fortnight earlier. The tendo Achillis was divided on July 26th, and the plantar fascia also, to correct an exaggerated arching of the foot. When last seen, early in September, 1868, he could walk firmly and well and complained only of some remaining stiffness of the ankle.

FILARIA LOA.

WE have received from the London School of Tropical Medicine a copy of a telegram sent by Dr. R. T. Leiper, Helminthologist to the School, and Interim Wandsworth Scholar, from Calabar, West Coast of Africa, on December 27th, 1912. The telegram was to the following effect: "The metamorphosis of *Filaria loa* has been proved to take place in the salivary glands in a fly belonging to the genus *Chrysops*." According to Sir Patrick Manson[2] *Filaria loa* has been known for over three hundred years. It is African in origin, but the cases of the affection caused by the parasite first described occurred in the West Indies in negroes who must have been attacked in West Africa before their deportation as slaves to America. The parasite appears to be widely distributed throughout tropical West Africa from Sierra Leone to Benguela. In some parts, as in Old Calabar, Cameroons, and the Ogowé River, a very large proportion of the inhabitants are the hosts of the parasite. *Filaria loa* has been noticed very frequently beneath the skin of the fingers, and has been excised from under the skin of the back, from above the sternum, from the left breast, the frenum of the tongue, the loose skin of the penis, the eyelids, the conjunctiva, and the anterior chamber of the eye. It has been stated that it may

[1] The report of the case was contained in the section of the address published in the BRITISH MEDICAL JOURNAL on October 31st, 1868, p. 462. It will be found in the *Collected Papers*, vol. ii, p. 71 et seq.
[2] *Tropical Diseases*. Fourth Edition, p. 677.

wander about under the scalp, but the part most frequently affected is the eye, for which the parasite seems to have a predilection. In the conjunctiva it may produce considerable irritation and congestion; sometimes there is pain with swelling to such a degree as to block up the eye. As a rule, the migrations of the parasite give rise to no serious inconvenience, but they may cause sensations of pricking, itching, creeping, and sometimes produce oedematous tumefaction in different parts of the body. These "Calabar swellings" are the commonest result of the invasion of the parasite. The swellings, which are due to the worm's migrations in the deeper parts of the limbs, in the muscles, and round the tendons, are painful, and impair movement so that the victim may be unable to write or even to use his hands. The swellings rarely last for more than a few days, but often recur in the same or another part of the body. There is some reason to suspect that at times, when travelling inside the skull, the worms cause epileptiform convulsions. It is obvious that if the parasite should wander into the glottis or the urethra the results might be serious. The effects are, however, seldom fatal. The embryos of *Filaria loa* are found in the blood only during the day time, and have therefore been called *Microfilaria diurna* by some, in distinction from *Filaria bancrofti*, the cause of elephantiasis, whose embryos are found in the blood only during the night and are known as *Microfilaria nocturna*. Sir Patrick Manson, many years ago, surmised that this nocturnal periodicity pointed to a nocturnal blood-sucking insect as the intermediate host, and he proved that the intermediate hosts were certain species of mosquitos. The diurnal periodicity of the embryos of *Filaria loa* suggested that the intermediate host was a day-biting insect, a member of the genus *Chrysops*. This, according to the telegram, has now been proved by Dr. Leiper. The importance of the discovery lies in this—that now it will be possible to determine the conditions under which human beings become infected. This gives ground for hope that means of preventing such infection will be found. The members of the genus *Chrysops* are day-biting flies, and are very widely distributed not only in the tropics but also in temperate climates, even in the British Isles. It is expected that Dr. Leiper will now be able to show which species of *Chrysops* are the carriers, as it is known that *Filaria loa* is limited to West Africa.

HEALTH RESORTS OF THE BRITISH ISLANDS.

THE study of British climatology and its application to medical treatment was greatly stimulated by the establishment of the special society which is now the Section of Balneology and Climatology of the Royal Society of Medicine. Under its auspices a descriptive textbook,[1] edited by Dr. Neville Wood, has recently appeared, in which a large amount of useful information is brought together as to the existing facilities for climatological and balneological treatment in the British Isles. Such a work is of course bound to cover, to a certain extent, some of the ground traversed by the account of the climates and baths of Great Britain, published ten years ago by the Royal Medical and Chirurgical Society. Borrowing a hint from the numerous publications relating to spas and health resorts published on the Continent, the editor has arranged the material at his disposal in a form that makes reference easy, and has dealt with individual places rather than with the corresponding features of larger areas. The inland health resorts and those which are commonly known as "watering places" are first described. In alphabetical order Bath heads the list, and the account of its therapeutic advantages is supplied by the Bath Medical Committee. A new property has of late years been credited to the waters—namely, radio-activity. The part that radium may play in the elimination of uric acid has not been determined, but the results of treatment by the Bath waters have always been attended with a remarkable measure of success. Efforts have not been wanting at Bath, as at many other British health resorts, to supply all forms of treatment and to render the "cure" as attractive as possible. Many Continental spas owe their popularity to the social amenities which they provide, and the complete change of scene and surrounding are as attractive to the British visitor as the curative reputation of the waters. It is hoped to attract Continental visitors in like manner to British spas, and to that end a French translation of the book is in preparation. The leading features of Scottish and Irish health resorts are included, and the addition of well-selected photographic views of all the more important places adds greatly to the practical usefulness of the volume. It is frankly admitted that in the practice of hydropathy many of our institutions are by no means up to the Continental standard. Some of them are simply comfortable residential hotels with baths attached to them. The average British patient, as a rule, unless he is seriously ill, will not place himself under doctor's orders with the same unquestioning faith displayed at Nauheim. Where faith is lacking, the "cure" is apt to be incomplete. But there are many valuable "hydros" fully described in Dr. Wood's book, where all sorts of treatment, with or without faith, can be carried out under one roof, and the well-equipped mineral water hospitals at Bath, Buxton, and elsewhere, afford relief to a large number of poorer sufferers every year. The coasts of the British Isles teem with health resorts of varying character, and a knowledge of these variations is very necessary before recommending any seaside place to an invalid. Much of the information with regard to them is derived from local medical committees. Some of the individual writers have supplied accounts which fall a little short of completeness. The reader unacquainted with the West of Scotland, for instance, might form the erroneous impression that there is only one hotel at Oban! Information as to the chief sanatoriums for tuberculosis, and a comparative summary of the relative advantages of healthy resorts at home and abroad, conclude a handbook which we can cordially recommend as a most useful addition to the number of works of reference which have become a necessity to the practitioner of modern medicine.

[1] *Health Resorts of the British Islands.* Edited by Neville Wood, M.D., Member of the Council of the Section of Balneology and Climatology of the Royal Society of Medicine, with the assistance of an Advisory Committee appointed by the Council of the Section. London: University of London Press. 1912. (Med. 8vo, pp. 268; 40 illustrations and 2 maps. 10s. 6d. net.)

HOSPITAL PATIENTS AT ADRIANOPLE.

AT the present moment, when the eyes of Europe are centred on the Near East, and the name of Adrianople is on every one's lips, it is interesting to find a description of the Thracian capital written by one of the few Europeans who have spent some time within its walls. The November number of *L'Hygiène* contains an article by Dr. P. Rebreyend, at one time surgeon to the French hospital at Adrianople, in which the writer draws a vivid picture of the quaint old city on the banks of the Maritza. His account of the hospital itself is by no means the least interesting part of his narrative. Founded at the time of the Russo-Turkish campaign, it was taken over at the end of the war by the French Assumptionists, who placed it under the care of nuns of the same order; and for some years past this modest little establishment of 45 beds has been a lodestone for the sick poor of every nationality and creed within a radius of many miles. As may be imagined, therefore, Dr. Rebreyend during his stay at Adrianople had ample opportunity for studying at close quarters the mingled elements which go to make up the population of this portion of the Balkan States; and it is both interesting and instructive to note his comments on the strong racial

characteristics which still distinguish one from the other a group of alien peoples who are all equally poor, equally ill-fed, and, with few exceptions, almost equally unhygienic. Dr. Rebreyend confesses that he found his Armenian, Jewish, and even his Greek patients extremely trying. Their hysterical lack of self-control was in striking contrast to the calm endurance of the Bulgars, whom the writer describes as being as fearless as they were dirty. He relates how he found one man waiting for him, seated upright on a chair; a train had passed over his arm, yet he retained his composure even when, on the removal of his vest, the injured limb came away in the doctor's hands. The greatest courage of all, however, was manifested by the Turkish men patients; their womenkind, as a rule, were excessively timid and neurotic. Dr. Rebreyend cites as a proof of the passive endurance of which the Turk is capable the case of one of his own patients, a man upon whom he himself had operated, and who alarmed him by his failure to awaken from the anaesthetic. He lay upon the operating table breathing as calmly and as regularly as a child, and the most vigorous slappings and shakings failed to have any effect upon his unnatural quiet. At length, in despair, after exerting themselves to the utmost for some twenty minutes, the assistants raised him to a sitting posture; and as he continued to pay not the slightest heed to those about him, started flicking him with wet towels. Their feelings may be imagined when the patient suddenly remarked: "It is of no use; you will never send me to sleep." He had been awake for the last half-hour!

THE DISCOVERY OF CHLOROFORM.

DR. PRIDEAUX G. SELBY (of Teynham, Kent) writes: "About the year 1885 Dr. Matthews Duncan, in speaking to me about the discovery of chloroform, told me that on the historic November 4th, 1847, it was he who took the chloroform to Simpson's house, and that he had found it in the chemical laboratory of the late Professor Gregory at Edinburgh. Dr. Matthews Duncan narrated how they were trying every possible form of inhalation in their search for an anaesthetic, and had all made themselves very ill by inhaling ordinary coal gas. The above scarcely agrees with the statements in your issue of December 14th, 1912, but anything bearing on that historic occasion is of intense interest, and Dr. Matthews Duncan's statement seemed worthy of record." We see nothing in the statement here attributed to Dr. Matthews Duncan that conflicts with the account of the first experiments with chloroform given in the JOURNAL. Dr. Matthews Duncan may have taken the bottle to Simpson's house, but it was not he that suggested that a trial should be made of it. On this point we have Simpson's positive statement, quoted in the JOURNAL of December 14th, 1912 (p. 1681). This is confirmed by the independent testimony of David Waldie, whose statement is contained in a paper on chloroform read by him at a meeting of the Liverpool Literary and Philosophical Society on November 29th, 1847. The following quotation from that paper, which we find in the *Chemist and Druggist* of December 21st, 1912, is conclusive. After dealing with the discovery of the chemical substance by Soubeiran in 1831, made again a year later by Liebig, who named it perchloride or terchloride of formyle, and referring to the fact that Dumas gave it the name of chloroform in 1834, Waldie proceeds: "To the best of my knowledge, from the result of many inquiries, it seems to have been introduced into this country as a medicinal agent, first in Liverpool, where, indeed, in the form of a spirituous solution, it has been more known than in any other part of the country, and from which, I believe, the knowledge of its therapeutic properties has extended. About the year 1838 or 1839 a prescription was brought to the Apothecaries' Hall, Colquitt Street, one ingredient of which was chloric ether. No substance being known there of that name having the properties of that with which the mixture had been previously prepared, Dr. Brett, then the company's chemist, in investigating the subject, found, in the United States Dispensatory, the formula for its preparation which has been noticed above, and prepared some. Its properties pleased some of the medical men, particularly Dr. Formby, by whom it was introduced into practice in this town. After coming to take charge of the company's laboratories, I found that the method of preparation yielded a product which was not of uniform strength, and sometimes of disagreeable flavour. Accordingly, I altered the process by separating and purifying the chloroform and dissolving it in pure spirit, by which a product of uniform strength and sweet flavour was always obtained. The vapour of the so-called chloric ether seems to have been tried as a substitute for sulphuric ether in February or March last, but without very satisfactory results, which, indeed, could scarcely be expected, unless the vapour of alcohol possessed the same properties, it being composed principally of alcohol. When in Scotland, in October last, Dr. Simpson introduced the subject to me, inquiring if I knew of anything likely to answer. Chloric ether was mentioned during the conversation, and being well acquainted with its composition, and with the volatility, agreeable flavour, and medicinal properties of chloroform, I recommended him to try *it*, promising to prepare some after my return to Liverpool, and send it to him. Other engagements and various impediments prevented me from doing this so soon as I should have wished, and in the meantime Dr. Simpson, having procured some in Edinburgh, obtained the results which he communicated to the Medico-Chirurgical Society of Edinburgh, on November 10th, and which he published in a pamphlet entitled 'Notice of a New Anaesthetic Agent as a Substitute for Sulphuric Ether in Surgery and Midwifery.'" Miss Eva Blantyre Simpson, speaking of her father's recklessness in experimenting on himself, says it is not unlikely that he may have made a private trial of chloroform, and laid it aside again "to start fair with his two assistants (Duncan and Keith) who had worked so unflinchingly with him." She adds that some other compounds were tried on that night of November 4th, 1847, "and then chloroform, which was lying in its little phial among some papers, was unearthed." This, as we know, was supplied by Duncan and Flockhart.

A PARASITIC MOULD OF THE HOUSE-FLY.

IN our issue for November 30th, 1912, appeared a letter from Dr. H. de Riemer Morgan, of the Lister Institute, Elstree, recording the fact that he had succeeded in obtaining an artificial cultivation of the *Empusa muscae*. It would appear, however, from information that has reached us that this is not the first time that corresponding success has been obtained. The existence of this parasite of the house-fly was, it is said, first recorded over fifty years ago by a German worker, and in 1910 Dr. Julius Bernstein, who was then engaged in bacteriological investigation on the subject of flies on behalf of the Local Government Board, suggested in one of his reports that an artificial cultivation of the *Empusa muscae*, if it could be obtained, might prove highly valuable in ridding towns of the pest of flies derived from horse-dung. Another person interested in the same subject was Mr. Edgar Hesse, whose regular occupation is that of assistant to a taxidermist in London, and whose hobby it is to study subjects of a bacteriological kind. This gentleman, a year or two ago, began to devote his energies to an investigation of the *Empusa muscae*, and at the beginning of last July submitted to the Local Government Board a sample of what he believed represented a successful attempt to cultivate this organism. The Local Government Board, through Dr. Monckton

Copeman, who is interested in the same subject, had the specimens examined by Dr. Julius Bernstein, who reported that the organism present was, in fact, the *Empusa muscae*. In the same month another experiment by Mr. Hesse proved successful, for he succeeded in killing three species of fly—*Musca domestica*, *Faunia canicularis*, and *Stomoxys calcitrans*—by feeding them on food impregnated with spores derived from one of his own artificial cultivations of the *Empusa muscae*. Mr. Hesse, it appears, placed the first of these facts on record in the issue of *The English Mechanic and World of Science* for July 12th, 1912, and a somewhat inaccurate version of this communication was published shortly afterwards in the American press. Since then Mr. Hesse has carried his experiments, we learn, somewhat further by inseminating manure with artificially-cultivated spores, and then attempting to develop fly larvae therein. The result was encouraging, for though the larvae assumed the chrysalis form, they did not hatch out. Other facts which Mr. Hesse believes he has proved are that the *Empusa muscae* is polymorphic, and by nature a saprophyte, though capable of living a parasitic existence when its spores happen to be swallowed by a fly. In the saprophytic condition it produces gonidia, but forms zygospores and gemmae when its food supply is exhausted. The spores produced persist, he finds, in a torula condition, and by inducing flies to swallow the spores by placing the latter in syrup he has subsequently been able to recultivate the conidia thrown off by them, thus completing the life cycle of the fungus. These observations are of interest because hitherto describers of this fungus have asserted that its spores work their way into the fly through the surface of its abdomen, while Mr. Hesse's experiments would seem to indicate that they are swallowed and probably germinate in the crop.

PELLAGRA IN AMERICA.

The Pellagra Commission of the New York Post-Graduate Medical School and Hospital has spent four and a-half months in studying pellagra in South Carolina. It is stated that there are at least 50,000 persons in the south suffering from the disease. At first it was confined almost entirely to the poorest class, but is now spreading considerably among the well-to-do. It is proposed to send another expedition in the spring. The Report of the United States Public Health Service issued at Washington on December 14th states that the number of persons who have died of pellagra in the States in the period 1907 to 1911 is 6,205.

BOY NIGHT-WORKERS.

The Committee on the Night Employment of Male Young Persons in Factories and Workshops,[1] of which Lord Ashton of Hyde was chairman, and which was appointed by the then Home Secretary, was the outcome of a debate in the House of Commons on May 24th, 1911. Objections were raised to the permission granted by an Order, dated April 10th, 1911, to employ boys of 16 years of age and upwards at night in the process of making artificial silk fibre in non-textile factories. There was a feeling against the night employment of boys generally, and it was thought that the Orders had been unduly extended. The Committee visited sixty-eight factories, and as several of the visits were paid during the night-shift period, so that the members of the Committee had the opportunity of seeing for themselves the exact conditions of work. The Factory Acts allow the employment of boys of 14 years of age in certain industries, and when the Acts were first applied in 1867 to some of the chief industries it was thought proper, owing to the continuous nature of some processes, to make special modifications allowing night employment of boys. Provision was also made for the extension of the same privilege to other trades by means of a Special Order of the Secretary of State. By the Act of 1895, and which was reaffirmed in the Act of 1901, night work was allowed for boys of 14 to 18 years of age at blast furnaces, in iron mills, letter-press printing works, and paper mills; power was also given to the Secretary of State to extend the exception by Special Order to boys employed in non-textile factories provided that the nature of the business required night work and that the processes were not injurious to the health of young persons. Among the industries excepted were certain departments in iron works, sugar refining, the galvanizing of sheet metal and wires, china clay works, electrical stations, and the manufacture of cordite and gun-cotton. No young person can be employed more than twelve hours in any consecutive period of twenty-four hours. The Committee tried to ascertain whether the health of boys employed in night work had suffered. It was difficult to obtain accurate information upon this point. Many of the medical men examined had not observed any injurious effects. Others thought the lads had suffered through want of adequate rest and sleep, deprivation of sunlight, and irregularity of feeding. Some factory surgeons, again, thought that the growth had been retarded, but there was no unanimity of opinion on these points. The conclusions arrived at by the Committee were that night work was unnatural, that the alternation from day to night work in the three-shifts system did not allow sufficient time for the individual to adapt himself to the unnatural conditions, and that night work deprived youths of the beneficial influence of sunlight and of sound continuous sleep. The Committee found, further, that the supervision of boys in the factory at night was not so efficient as during the day, and that the employment deprived the boys of the opportunity of attending evening classes. The Committee is therefore of the opinion that it is undesirable to employ boys under 18 years of age in factories where night work is required. A boy who is earning wages at the age of 14 is usually better fed than a boy who is not occupied at all, and it is better to have boys under some restraint between 14 and 16 years of age than running wild. It has to be remembered that boys of 14 are allowed to work in coal mines. Why, then, it may be asked, refuse to give permission to work in the factories? The Committee expresses its belief in the three-shift system of eight hours per shift with a half an hour interval of rest, in the advisability of boys being periodically medically examined until the age of 18, of employers giving proof of having made all effective provisions, and the Secretary of State only granting exceptions under the most necessitous circumstances.

[1] London: Wyman. 2½d.

THE MADNESS OF KINGS.

The recent death of the aged Regent of Bavaria, and with it the reopening of the whole painful story of this ill-fated house, raises questions of peculiar interest in connexion with the psychiatry of royal personages. It would appear at first sight that, if the moral and intellectual qualities of a sovereign can add to the enrichment and glory of a nation, the contrary should also hold good. It is remarkable to note, however, how little dependent the evolution of a nation really is upon the mental or physical health of its monarch. Moreover, the history of the House of Bavaria shows that a madman clothed in purple can on occasion be an excellent head of the State. The outstanding cases of insanity in reigning monarchs are not numerous. Perhaps one of the earliest to which historical reference is made, is that of Nebuchadnezzar, King of Babylon, who suffered from lycanthropy, a form of insanity of comparative frequency in antiquity as well as in the Middle Ages. Beyond being afflicted with jealousy amounting almost to

monomania, there is no indication that Saul, King of Israel, was insane. More recently Peter III of Russia, grandson of two great kings—Peter I on the maternal side, and Charles XII of Sweden—was a degenerate in the full meaning of the term. Paul I of Russia, his son, was sickly, weak, and epileptic from birth. He it was who proposed that the sovereigns of Europe should settle their differences by mortal combat! Although he imperilled the country by his extravagance and eccentric habits, the pathological history of Paul is interesting in that he was incontestably the superior of his father from a psychological point of view. His death by strangling was defended as a matter of necessity for the welfare of his country. The subject is one of great interest for the physician and the philosopher, and we do not know that students of psychiatry have hitherto given it the attention it deserves.

EPSOM COLLEGE.

ELSEWHERE will be found an appeal by Sir Henry Morris, Honorary Treasurer of Epsom College, on behalf of that most deserving institution. The calls on the profession are so great, and its financial future is at present so shrouded in threatening clouds, that there is some danger lest the appeal should fall on ears deafened by the din of a fight *pro aris et focis*. It need scarcely be pointed out, however, that Epsom is intimately connected with the domestic hearths of doctors. To many of them it is what Byron called

> That schoolboy spot
> We ne'er forget though there we are forgot.

To others it is the place where their sons are receiving a public school education of the highest class at a moderate cost, and where the sons of some of their less fortunate brethren are boarded, clothed, and maintained free of charge. To others, again, Epsom represents a haven of refuge for men who have been buffeted about by the storms of life, for widows and for orphans of medical men. To meet the cost of all these benefactions a sum of nearly £7,000 a year is required, of which £4,500 must be obtained by annual contributions. More money is urgently needed for general purposes, among which Sir Henry Morris mentions the provision of adequate arrangements for the sick in time of epidemic illness, and other improvements. Full details of the great work done by the foundation will be found at p. 7 of our advertisement columns in last week's issue. The medical profession is by no means rich, and it is highly creditable to the spirit of brotherhood which animates its members that it should, mainly by its own efforts, have raised such a monument of benevolence. We have all reason to be proud of Epsom, and not a few of us owe it a debt of gratitude. We therefore most earnestly commend Sir Henry Morris's appeal to the favourable notice of our readers. We hope that the support which has been so liberally given in the past will not be wanting at this hour of special need.

NEW YEAR HONOURS.

AMONG the honours conferred by the King on the occasion of the New Year is that of knighthood to be received by Dr. R. W. Philip, physician to the Royal Infirmary and senior physician to the Royal Victoria Hospital for Consumption, Edinburgh, in recognition of the pioneer work he has done in the organization of a co-ordinated system for dealing with tuberculosis. The same honour is conferred on Dr. George Turner, formerly medical officer of health for the Transvaal, and medical superintendent of the Pretoria Leper Asylum, whose services in these capacities were conspicuous; and on Dr. David Hardie, of Brisbane, member of the Medical Board and Central Board of Health, Queensland. Inspector-General Duncan Hilston, R.N., C.B., honorary physician to the King, formerly in charge of the Royal Naval Hospital, Haslar, is promoted to be K.C.B. The Kaisar-i-Hind Gold Medal is conferred on Major H. W. Grattan, R.A.M.C., officer in charge of the enteric fever convalescent depôt at Naini Tal; on Dr. J. Andrew Turner, Health Officer to the Bombay Municipality; on Major E. Reinhold Rost, I.M.S., senior civil surgeon, Rangoon, whose name is known for his researches on the morphology of the lepra organism, and the treatment of leprosy; and on Major E. L. Ward, I.M.S., Punjab. The honour of knighthood is accorded also to Mr. Francis Darwin, who, after studying medicine at St. George's Hospital and graduating M.B., became personal assistant to his illustrious father, and has won distinction as a botanist. The same honour is conferred on Mr. Stewart Stockman, Chief Veterinary Officer to the Board of Agriculture. Professor Wyndham Dunstan, formerly lecturer on chemistry in the medical schools of Oxford and St. Thomas's Hospital and at the Pharmaceutical Society, becomes C.M.G.

LADY ALMONERS AND THE AFTER-CARE OF HOSPITAL PATIENTS.

THE institution of the lady almoner as an adjunct to the hospital staff has already proved very effectual as a means of checking actual abuse. The mere fact that such an officer is empowered to inquire into the social status of hospital patients prevents application by those who are not prepared to face her. But the functions of the lady almoner go far beyond those of the inquiry officer. While the medical staff in the casualty or out-patient departments can prescribe treatment and give valuable advice they are quite unable to see to it that either are used intelligently. It is only by knowledge of home conditions and social surroundings that the average patient can be satisfactorily helped to regain his health. The lady almoner and her trained assistants are now at hand to help him, if he be a patient of St. Thomas's Hospital. A system has been in force at that institution for the last three years, started and financed by the trustees of the Cicely Northcote Trust, whereby a large number of the hospital's patients, particularly tuberculous and gynaecological cases, have been materially assisted in their own homes by the sympathetic aid and advice of a number of lady assistants, trained to the work and acting under the general guidance of the lady almoner. To give such help in strange households without undue interference with established customs, requires no small amount of tact on the part of the visitor, but experience has shown that it is for the most part received with gratitude if offered in a sympathetic way. The Cicely Northcote Trust has recently issued its third annual report, which contains, not only a full account of the work done, but also some interesting statistics as to the social conditions commonly prevailing amongst the patients with whom it has had to do. Such facts as the following, for instance, are somewhat striking. Of 341 consumptive patients visited in their own homes no less than 287 were found to be sleeping with at least one other person, and sometimes with three or four, in the same bed. The help given to gynaecological patients naturally calls for the exercise of much tact and perseverance to overcome prejudice and rooted habits, but good work appears to have been done particularly amongst unmarried girls and women. In many cases a reference to other charitable agencies has provided the needed help. Such work as this, if it could be extended to all the great hospitals, would greatly increase their practical value to the community. The published accounts of the Trust go to prove that administrative expenses are heavy, but no explanatory details on this point are given in the report. Administrators of

large legacies left for charitable purposes would be well advised in following the example of the Cicely Northcote Trustees.

Sir Ronald Ross, who intends to reside in future in London, has been appointed Physician for Tropical Diseases to King's College Hospital. On the transference of the hospital in South London in the course of the summer, he will have charge of beds for cases of tropical disease.

Dr. Alex Hill has been appointed Principal of Hartley University College, Southampton. Local interest in placing the college on a sound footing has been greatly stimulated in recent years. A sum of £32,000 has been raised for the erection of the first block of a new college, and it is believed that Dr. Hill's long experience in educational work will be of great assistance in the development of the institution. In addition to his work in Cambridge, where he was Master of Downing College from 1888 to 1907, and Vice-Chancellor in 1897–99, he served as one of the Commissioners reporting to the Treasury on University Colleges, as a member of the Welsh Colleges Committee, and as President of the Teachers' Guild. He has also held the office of President of the Neurological Society, and was Secretary of the Congress of Universities of the Empire held in London last year.

Medical Notes in Parliament.

[From our Lobby Correspondent.]

Medical Benefit.—Mr. F. Hall asked whether, under the National Insurance Act, an insured person will be entitled to be treated by his own medical practitioner; and, if so, whether in the event of a number of doctors refusing to accept service under the Act, any amendment thereof will be sought to meet the situation thus arising. The Chancellor of the Exchequer replied: The insured person is entitled to a free choice amongst the doctors registered on the panel subject to conditions defined by Section 15 (2) of the Insurance Act. If, however, the doctor of his choice declines to go on the panel, the insured person is not entitled to claim as a right that he should be treated by his own medical practitioner at the expense of the insurance fund. Mr. F. Hall: May I ask whether, in the event of private medical practitioners not coming on the panel, the insured person is to be at the mercy of the Insurance Commissioners or the Insurance Committee? and how does that really fit in with Section 15 of the Act and the promises made? Mr. Lloyd George: If the hon. member will take the trouble to read the Act he will see that there is only a right of choice amongst doctors on the panel, and that if any private arrangements are made with doctors outside they must be subject to the allowance of the Insurance Committee and the Insurance Commissioners. Mr. F. Hall: May I ask the right hon. gentleman whether, when he went into that question, he thought so many medical practitioners would not accept service under the Act? Captain Murray: Can the right hon. gentleman say whether it is not practically certain now that sufficient doctors will come forward to work the Act? Mr. Lloyd George: I prefer not to express an opinion. Mr. Worthington Evans: May I ask whether any objection will be made by the Insurance Commissioners to allowing Insurance Committees to permit private practitioners in counties to continue attendance for individual patients under Section 15, Subsection (3), of the Act? Mr. Lloyd George: I think that would depend entirely upon circumstances. Earl Winterton: Will the right hon. gentleman make a general statement as to what he proposes to do in cases of counties where the whole of the doctors have refused to serve? Mr. Lloyd George: I should first of all have to wait and see whether there are any counties of the kind. Earl Winterton: There are.

There was a desire to raise a discussion on medical benefit with reference especially to the conditions under which insured persons can make "their own arrangements," and on the motion for the adjournment of the House on Tuesday evening Mr. Worthington Evans asked whether the business would be in order in view of a blocking notice put down by Mr. Sherwell (Huddersfield). Mr. Lloyd George said that the Government would not oppose, and he would be happy to answer questions, but the Speaker ruled that a debate would not be in order, and appealed to Mr. Sherwell to withdraw his block so that the matter might be discussed on Wednesday; this suggestion was accepted.

Tuberculosis Prevention in Ireland.—A bill entitled the Tuberculosis Prevention (Ireland) Bill was introduced into the House of Commons on December 16th by the Chief Secretary for Ireland. The memorandum prefixed to the bill states that its main object is to amend the law under which provision is made by local authorities in Ireland for the treatment of tuberculosis. It amends and extends the Tuberculosis Prevention (Ireland) Act, 1908; it is to be construed as one with that Act, and the two Acts are to be cited together as the Tuberculosis Prevention (Ireland) Acts. The first clause of the bill would make the notification of tuberculosis compulsory throughout the whole of Ireland; at present it is only in force in those sanitary districts in which the provisions of Part I of the Act of 1908 have been adopted. The second clause directs that cases of tuberculosis are to be notified to the medical superintendent of the tuberculosis dispensary which may have been established in any county instead of the local medical officer of health. The third clause varies the regulations as to the classification of expenses incurred by county councils in connexion with tuberculosis hospitals and dispensaries, and provides that all such expenses are to fall upon the poor rate. The clause also contains a temporary provision with regard to such expenses during the current financial year. The fourth clause empowers county councils providing a common hospital or dispensary to adjust the proportion of the expenses to be borne by each county. The fifth clause would enable a joint hospital provided by sanitary authorities under the Public Health (Ireland) Act for the treatment of tuberculosis to be transferred to a county council. The sixth clause declares that a person suffering from tuberculosis may be admitted, and maintained and treated in any hospital provided under the Act, notwithstanding that he is not an inhabitant of a county the council of which has provided or joined in providing the hospital. The seventh clause authorizes the Local Government Board to place any land vested in it at the disposal of the county council as a site for a dispensary. The eighth clause repeals certain sections and subsections of the Tuberculosis Prevention (Ireland) Bill.

Tuberculosis Act (Ireland), 1908.—Mr. Hugh Barrie asked the Chancellor of the Exchequer whether he was aware that, until it was definitely known what grant-in-aid was to be provided by the Treasury, Irish county councils were reluctant to adopt Part II of the Tuberculosis Act, 1908, with its financial responsibilities; and whether he would take an early opportunity of intimating the amount of the Treasury grant. Mr. Masterman said that the Irish Local Government Board was now preparing a circular explaining the distribution of the grant, including the additional sum to be provided in connexion with the provision for non-insured persons. In reply to a further question, Mr. Masterman said that he was unable to say whether the circular would be in the hands of the Irish county councils at their next meeting (January 10th), but would communicate with the Irish Office.

At the meeting of the Medico-Legal Society to be held at 11, Chandos Street, London, W., on Tuesday, January 21st, at 8.30 p.m., Professor Benjamin Moore will read a paper entitled "First Steps towards a State Medical Service."

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

PRACTICAL INSTRUCTION ON TUBERCULOSIS AT EDINBURGH.

THE opening of the well-equipped new dispensary buildings at Edinburgh has added much to the teaching facilities in relation to tuberculosis. There are now available for purposes of study the Tuberculosis Dispensary, the Sanatorium (Royal Victoria Hospital), and the Royal Victoria Hospital Farm Colony. These are all linked together closely, and those attending the course have the opportunity of studying the co-ordinated system in operation. In addition, the pathology of the subject is overtaken in the pathological department of the new school and the new pathological museum and laboratory attached to the dispensary.

The next course commences on Monday, January 13th, at the new dispensary. As the numbers attending previous courses have been large, graduates and others proposing to join the present course are advised to make early application. A further announcement regarding the course will be found in this week's advertisement columns.

SCHOOL BOARDS AND MEDICAL TREATMENT.

A good deal of interest has been aroused by the recent decision in the Court of Session with reference to the medical and dental treatment of school children under the Glasgow Board. It may be explained that the Glasgow School Board will get a share of the sum of £7,500 which was set apart by Parliament for the treatment of necessitous school children in Scotland for the year ending February 28th, 1913. This money is available for the purposes of treatment. In Edinburgh premises have been rented by the School Board, although the arrangements for treatment so far as the staff is concerned have been made to February 28th only. The amount which the Edinburgh Board will obtain is £850. Glasgow's share will be much larger. The judgement of the Court of Session does not deal with this money but merely makes it clear that the School Board is not empowered to take money from the rates for the purposes of treatment. That was the view of the board before the raising of the action, but as the Education Department was rather of opinion that the Education Act made it possible to do certain things, a legal decision was necessary to remove any doubt in the matter. Hence the test case. It may be noted that the cost of medical inspection undertaken in the schools of the Glasgow Board amounts to about £5,000, half of which is rated for. The staff consists of a principal medical officer and three full-time medical assistants, together with thirteen part-time medical assistants. There are ten nurses employed. In addition there are specialists for eye and throat diseases and for the mentally defective cases. Under the Govan School Board, also in Glasgow, there are two medical officers devoting their whole time to the work of medical inspection, and ten are engaged part time. The cost is about £1,800. In Aberdeen the School Board works in co-operation with the Public Health Committee of the Town Council. The medical arrangements are in charge of Dr. Rose, who has an assistant and a staff of nurses. Recently the School Board appointed a dentist to give half-time service at a salary of about £250 a year, the cost being defrayed out of the Treasury grant. In Dundee the duties of the school medical officers are confined to inspection and giving advice as to the most common school ailments, especially defective sight, bad teeth, and ringworm.

MILK AND RETURN CASES OF SCARLATINA.

In his usual report to the Health Committee of Glasgow, Dr. A. K. Chalmers, M.O.H. for the City, drew attention in November to an unusual experience in connexion with return cases of scarlatina. Twelve cases in all occurred, affecting eleven households. An interval of sixteen and thirteen days respectively separated the two earlier cases from the others, the dates of sickening being November 2nd, 5th, 18th, 23rd, and 26th (1 case each), November 20th (3 cases), and November 21st (4 cases). All the employees at the dairy of which these families were customers were medically examined without furnishing a history or showing any symptoms suggesting scarlet fever, but when the farm from which the milk supply of the dairy was obtained was visited and the members of the household examined, it was found that two of the farmer's children had been dismissed from one of the county fever hospitals, one on October 26th and another on November 16th, and that the former was suffering from an acrid nasal discharge so frequently associated with return cases of the disease, while the latter bore evidence of having recently had a similar discharge. This is believed to be the first instance in which milk appears to have become the carrier of infection thus acquired, and the explanation in the present instance would appear to be that the mother attended to the child with the discharge, and was also engaged in milking. The children were at once removed from the farm and the premises disinfected. Since then no further cases have occurred.

OVERCROWDED GLASGOW.

An important pronouncement will shortly be made with regard to the problem of dealing with congested areas in the city of Glasgow. No fewer than five committees of the Corporation are at work, and, with a view to ascertaining the rate of progress and arriving at a common policy, the Lord Provost held an informal meeting a few weeks ago with the principal members of these committees. As a result, proposals for a definite policy on a large scale will shortly be submitted. The financial aspects are large and give rise to controversy, but it is generally recognized that the time has come when some forward step must be taken. The most important of the committees is that on the Housing of the Working Classes Acts, of which Bailie Dr. E. McConnell is convener. It is tackling the question of back lands in slum areas. The tramways surplus of £56,000 handed over to it two years ago is a start. Though the magnitude of the task renders progress slow, several slum areas are to be purchased for demolition and the creation of open spaces in congested districts. The City Improvement Committee, and special subcommittees of the Health, Tramways, and Statute Labour Committees of the Corporation are also dealing with different phases of the problem.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

TUBERCULOSIS SCHEMES.

AT its last meeting the Dublin County Council elected Dr. M. J. Cuffe as tuberculosis medical officer at a salary of £500 a year, with £100 additional travelling expenses.

The Cavan County Council proposed to appoint a tuberculosis officer at a salary of £200 per annum, with £50 for travelling expenses. At the last meeting a letter was read from the Local Government Board suggesting that they should fix the proposed salary at £400 and expenses. Letters were also read from the secretaries of the Conjoint Committee and of the co. Cavan Local Medical Committee, stating that any doctor appointed under the terms proposed by the county council would not be in a position to receive the co-operation of the general practitioners of the county, inasmuch as the terms were distinctly at variance with those laid down by the Conjoint Committee. After discussion the matter was adjourned pending the receipt of particulars as to the number of insured persons in the county.

The Insurance Act County Committees' Association, after considering the Local Government Board circular on the scheme for the distribution of the maintenance grant for treating non-insured persons and dependants of insured persons, passed a resolution that, in view of the uncertain cost of the treatment required and the inadequate promises made hitherto by the Exchequer, the committee could not recommend the county councils to undertake for the present institutional treatment of non-insured persons other than such dependants as could be wholly provided for out of the funds of the Insurance Committees.

P. F. COLLIER MEMORIAL DISPENSARY.

At a meeting held at the Mansion House, Dublin, on December 16th, the Countess of Aberdeen, on behalf of the Women's National Health Association, formally handed

over the P. F. Collier Memorial Dispensary for the Prevention of Tuberculosis to the Lord Mayor and Corporation. The first annual report was read by the Medical Superintendent, showing that from July, 1911, to November, 1912, 1,176 patients had been seen and examined, and 547 were diagnosed as suffering from definite pulmonary tuberculosis. Béraneck's tuberculin had been administered to a large number of patients with very satisfactory results. The total number of attendances of patients at the dispensary during the year was 8,400, and an extensive system of home visitation had been carried on. The Honorary Secretary, Sir William Thompson, Registrar-General for Ireland, submitted the balance sheet, which showed that the building, equipment, and initial expenses were £2,519, which with the other expenses, wages, medical appliances, brought the total expenditure to £4,114. The Corporation had agreed to pay £2,000 for the dispensary.

Lady Aberdeen said that when Mr. Robert Collier made his generous offer he expressed the hope that it might be found possible to hand it over to the rightful keepers, the municipality.

Belfast and its Milk Supply.

Some months ago the City Corporation sought powers from the Local Government Board to inspect dairies outside the borough from which milk was sent into the city. Some 12,000 of the 18,000 gallons consumed come from outside dairies. The councils of some districts objected that no English city had these powers, and that difficulties would arise from the double inspection and the different standards demanded; but it was pointed out that if a dairyman complied with the Act he had nothing to fear. The Local Government Board has come to the conclusion that, while it is right that the city council should satisfy itself of the purity of the milk supply, it would be better for inspection to be a matter of consent on the part of the district councils.

The Draft Rules for Midwives in Belfast.

The Public Health Committee, on December 19th, 1912, received an objection from the Local Government Board to the draft rules which the committee had drawn up to give effect to the provisions concerning midwives practising in Belfast, contained in Part 8 of the local Act of 1911. These draft rules had been laid before the medical guild in Belfast, and had been discussed. The Board pointed out that the provisions relate to certificates to practise, the midwives' roll, and the notification of intention to practise, but that the corporation was not given any powers to make rules or regulations in respect of the practice of midwifery.

Salaries of Medical Officers.

At the last weekly meeting of the Thurles Board of Guardians the salary of Dr. Thomas Barry, medical officer of Littleton Dispensary District, was raised from £120 to £160, in order to place him on equal terms with the other medical officers in the Thurles Union.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

MANCHESTER AND DISTRICT.

Post-Graduate Classes.

The course of post-graduate demonstrations given by members of the honorary staff of the Manchester Royal Infirmary will be resumed on Tuesday, January 14th. The demonstrations will be given on Tuesday and Friday of each week during the second half of the winter session, the medical demonstrations being on Tuesdays and the surgical on Fridays. Notice of subjects will be published, and will also be found posted in the Oxford Road lodge of the Royal Infirmary.

Course in Tuberculosis.

An advanced course in tuberculosis commenced on December 17th in the Public Health Laboratory of the University of Manchester, when a laboratory class began its work under the guidance of Professor Sheridan Delépine, assisted by Drs. Sidebotham and Sellers. This part of the course will be supplemented by lectures and demonstrations, and we publish this week the introductory lecture given by Professor Delépine. The first course of clinical instruction will begin on January 20th at the out-patient department of the consumption hospital, and will be under the direction of Drs. Moritz, Haring, Renshaw, Marsden, and Cunliffe. The first course of instruction on administration will be conducted by Dr. Niven at the Manchester Public Health Office, beginning on April 5th. The whole course extends over a period of not less than six months, and the course of clinical instruction is continued throughout the whole period.

The Manchester and Salford Provident Dispensary Association.

Some months ago, when the resignations of the clubs were sent in throughout Manchester and Salford, there was evidently some doubt as to whether the resignations applied only to members who would become insured persons or to the whole club. Opinions varied among the medical officers of the provident dispensaries, but in order to arrive at uniform action a meeting was held, and they decided to inform the officials of the Dispensary Association that their resignations must be regarded as applying to the whole of the members, many of whom are women and children. It was also decided that the final decision as to any new terms that might be offered for treatment of the non-insured members should be left to the Joint Committee of the Manchester and Salford Divisions acting as the Provisional Medical Committee. Soon afterwards a communication was received from the Dispensary Association saying that it was prepared to make an increase in the capitation payment to the medical officers. At present there are nine branch dispensaries, whose funds are kept separate, and which have a total membership of over 15,000 on the books, or, reckoning those children of members who are under 14 years of age for whom no subscription is required, the gross number is about 17,000. After the withdrawal of those who will be insured persons under the Act, it is expected that from 8,000 to 10,000 will still remain on the books, and it was for these non-insured that it was proposed to continue the dispensaries. The present contribution is a penny a week, with a provision that the subscription for all children under 14 years of age in any one family shall not exceed twopence a week, children over this age paying as separate members. There is also an entrance fee of 6d. a member or 1s. for a family, and persons actually suffering from illness may join on paying an entrance fee of 5s., provided that the whole of the family of the applicant joins at the same time. A penny is also paid for each bottle of medicine or other article supplied. Members have a free choice among the doctors of the branch they join, and the medical officers receive one half of the ordinary contributions according to the number of members on their lists, and in addition, if there is any balance after defraying expenses, at least two-thirds of it, and sometimes the whole, is distributed to the medical officers in proportion to the amount already received. In 1910 the receipts from subscriptions and entrance fees were £3,187, and the sum paid to the medical officers, who number 32, was £1,695, which does not include fees for special visits nor confinements, for which a special charge is made. There is no fixed income limit, but the dispensaries are understood to be only for those who are unable to pay ordinary fees, and if any question arises on any person applying for admission it is referred to the Charity Organization Society for investigation. Under the new terms offered the contributions would have been raised so as to provide about 50 per cent. increase in the remuneration of the medical officers, who would also have been entitled to control the admission of new members, and membership would also have been open to review at any time if a member's circumstances changed so as to make him reasonably independent of a charitable institution. These conditions were suggested owing to complaints that not a few of the members could well afford to pay ordinary medical fees. The offer of the Dispensary Association was laid before the Joint Committee of the Divisions, which decided to submit it to the medical officers themselves before coming to any decision. A conference was accordingly held,

and after some discussion the medical officers, voting separately, decided to reject the offer not to appoint any committee to negotiate about any fresh arrangements, and expressed the opinion that the dispensaries, at any rate on their present basis, should be ended. These resolutions of the medical officers present at the conference were then confirmed by the Joint Committee, and the following reasons for the decisions were assigned: (1) That the dispensaries cannot be carried on as a satisfactory business undertaking. (2) That the management expenses are extravagant, and cannot be proportionately reduced when insured persons now members are withdrawn. (3) That any medical charity should be solely under the control of the medical profession. It was recognized that this decision will undoubtedly be serious for a few of the medical officers, and it is hardly to be expected that the council of the Dispensary Association will willingly acquiesce in the ending of an institution which has been in existence for upwards of thirty-six years.

NORTHUMBERLAND AND DURHAM.

THE decision of the recent Representative Meeting was awaited with great anxiety by all the members of the medical profession in the industrial districts of Northumberland and Durham. When the decision and the resolutions, with the remedy suggested, were known, great astonishment was expressed that the meeting should have tampered with one of the cardinal points, as it was feared that the attack which has been so successfully carried on by the profession against the National Insurance Act would thus be weakened. The men in this area have been working for years to get rid of friendly society control, and for any legislative body of their profession to ask them to again place themselves in such a position seemed to them most unwise. The loyalty and devotion with which the members of the profession have united in face of a common foe have been most striking. At the many meetings held since the Representative Meeting the great depths to which the roots of this loyalty have penetrated have been proved. It has only been owing to what is regarded as the sheer necessity of the situation, and the impossibility of carrying out the resolution of the Representative Meeting, that the men in so many areas have agreed to work the Act provisionally. They are still heart and soul with the Association; and, so far from there being any ground to fear for the maintenance of the Association, it is certain that it will increase in power, and go on growing upon a foundation even more solid than that on which it has hitherto rested. At one of the largest meetings of the Branch Council ever held, a very long and able discussion took place, and the opinion of an independent legal authority was obtained which stated that, owing to the action of the Representative Meeting, the pledge was no longer binding on the members of the Association; the Branch Council passed a resolution to that effect, and advised the members to accept service provisionally under the Act, and at the same time to renew their demands for the points for which they had been fighting. This line of action has been adopted by all the Divisions in the Branch with the exception of two, and it seems probable that even these two, although they are very strong and their circumstances are unexceptional, will find it impossible to resist accepting service under the Act.

A notice of meeting was sent to all the members and non-members in the area, outside the county boroughs, asking those unable to attend to express their views on the present position in writing. Only some fifteen replies against working the Act were received, as compared with close on a hundred stating that owing to the recent action of the Representative Meeting there was nothing for it but to work the Act provisionally. This is the feeling which prevails generally throughout the Branch; but there is a deep feeling of sorrow and regret that this action has been forced on its members. One and all state that some other and more dignified way out should have been found. There is every indication that the men in this area intend to stick to the Association; but, it is said, men in other areas in the country will have to learn to give and take, and not to ask men to carry out impossibilities and sink their principles, as has recently been demanded of them.

LONDON.

LONDON COUNTY COUNCIL.

Medical Treatment of School Children.

DURING an all-night sitting of the London County Council on December 17th, 1912, Mr. R. A. Bray moved an amendment to a formal report of the Education Committee on the subject of school medical work:

> That the Education Committee do consider as to the establishment of one or more school clinics under the direct management of the Council.

He urged that the Council should try various methods of supplying medical treatment and select the one that proved the best. Of the two methods at present in operation, the Board of Education had stated that it could not sanction the arrangements with hospitals as anything more than a temporary expedient. Those in touch with the negotiations knew that the hospitals generally would never conform to the "London Hospital type," as required by the Board of Education. There were also difficulties connected with the other method of providing medical treatment—that of local centres managed by committees of local practitioners. The Board of Education only allowed the Council to make the agreements from year to year, and that made it difficult to obtain premises at a reasonable rent. Furthermore, it would be very convenient to the Council to be able to move its medical men about, and this could not be done with the local medical committees. The local practitioners had undertaken for a fixed rate of pay to provide medical treatment at a certain place, but sometimes the Council was not able to supply the full number of cases agreed upon. If the doctors were in the service of the Council it would be possible to arrange for them to go to another centre and put in the rest of their time there. As to the cost of a clinic, a private house could easily be adapted for the purpose. The second element of expense was the payment to the doctor. He had very good reason for believing that the doctors under the present arrangement had asked to be paid not only time-rates but piece-rates as well. They wanted £50 a year for one half-day a week, and at the same time they would only see a limited number of new cases each time. The experience of Miss McMillan at the Deptford health centre showed that the doctors there could see a great many more new cases each time than those under agreement with the Council saw. The Council had agreed to everything the doctors had asked for, without any sort of bargaining. If the doctors were in the direct employ of the Council their attendance for a definite time to see all the cases that the Council liked to send could be secured. By this means the work could be done much more cheaply. Finally, Mr. Bray urged that the present arrangements with the hospitals were unsatisfactory because a child with more than one ailment might be sent to one hospital for one complaint and to another for a second, while the nursing treatment which followed was provided by a third organization.

Miss Adler, who seconded, called attention to the fact that under the present arrangements in 3,000 cases out of 27,000 the children did not complete the course of treatment. A clinic would be more convenient to parents and would enable inspection and treatment to be co-ordinated.

Mr. F. R. Anderton, chairman of the subcommittee of the Education Committee concerned, claimed that the local treatment centres were practically clinics, and were so described in the report of the medical officer to the Board of Education. In addition to the arrangements now in force at eleven hospitals and eleven treatment centres, schemes were in prospect for treatment at one more hospital and five other centres. These would provide for the treatment of 48,000 defective children. No figures had been adduced by previous speakers to show that local treatment centres were more expensive than would be clinics managed by the Council. One of the advantages of the present arrangements was that the doctors on the rota of the practitioners' centre were known locally; they were the people whom the parents would be most likely to trust, their reputation being known. There was no need for an experiment of the kind suggested.

On a division, the proposal was lost by 55 votes to 40, and the report of the Committee was adopted.

Further Provision for Dental Treatment.

Mr. Bray moved a further amendment:

That the Education Committee do consider and report as to the establishment of additional dental centres which will, with existing centres, make provision for the treatment of not less than 50,000 cases a year.

He pointed out that it was proposed this year to increase the provision only from 13,000 to 19,000, and then only to treat children of three age groups—6, 7, and 8. Nevertheless, of the whole number of London children, a very large proportion required dental treatment.

In reply, Mr. Cyril Cobb, Chairman of the Education Committee, announced that additional schemes were under consideration which he hoped would be thought entirely adequate. There were seven treatment centres at present; four more were about to be established, and seven more in the course of the year. By this time next year the Council would be treating 32,000 children. A sum of £8,500 was included in the estimates to meet the cost.

The amendment was lost, and the Committee's report was then adopted.

Correspondence.

EPSOM COLLEGE: AN APPEAL.

Sir,—Will you allow me to ask your readers to respond to this appeal on behalf of the Royal Medical Foundation of Epsom College? The need of fresh supporters has never been more acutely felt than at present, because, apart from the annual loss of many staunch friends who became attached to the institution in its earliest years, the general increase in taxation, and the uncertainty which is overshadowing future medical practice, are seriously affecting the income derived from annual subscriptions

As is well known to all your regular readers, the foundation provides annuities of £30 each for fifty aged members, or widows of members, of the medical profession, and gives first-class education, together with clothing and maintenance, to fifty necessitous sons of medical men. To meet these urgent liabilities a sum of close upon £7,000 a year is required, of which about £4,500 must be obtained by annual contributions.

The applicants far exceed in number those that can be helped, even when the whole of the sum just mentioned is subscribed.

Besides the demands on the foundation funds, the general purposes fund of the college has been wellnigh exhausted in making good the ravages of time and of weather on extensive buildings situated on an elevated and exposed (though very healthy) site, in making such structural alterations as changes in educational methods and in the ordinary requirements of a large institution necessitate, as well as in substituting modern sanitary conditions for those which were in use when the college was built some sixty years ago.

Much still remains to be done in providing adequate and up-to-date arrangements for the sick in times of epidemic illness, in repairing boundaries and roads within the boundaries, in providing increased accommodation in the college chapel, and in making other improvements. The council therefore would welcome contributions specially earmarked "general purposes," as well as donations and fresh annual subscriptions to the Royal Medical Foundation Fund.

In order that this letter may not be too long, full details of the work which is being carried out by the college were given in last week's advertisement columns of the British Medical Journal.—I am, etc.,

Henry Morris,
Honorary Treasurer.

London, W., Dec. 18th, 1912.

MANIFESTATIONS OF A HEALTHY HEART.

Sir,—While Dr. James Mackenzie's paper (December 21st, 1912, p. 1697) is highly interesting and instructive, yet there are points which appear to me somewhat obscure, and if they could be cleared up it would be of great advantage to the profession.

It is clear that both the mechanical details of the pump as well as the driving power must be in order for the heart to be "normal," and if the first are faulty the second is called upon for more work, and if the first are sufficiently faulty the second cannot supply this work.

In the paragraph, "Significance of Murmurs," Dr. Mackenzie excludes from the discussion "murmurs due to damaged valves," and states that he confines himself to the question of "functional" murmurs, winding up the paragraph with the words: "I am justified in stating that functional murmurs in the young, in the absence of evidence of muscle affection, are signs neither of disease nor of impairment."

This last sentence shows that the term "functional" requires defining before any discussion on the subject can be satisfactory, as, in at any rate the minds of some, the essence of a functional murmur is that it should not be due to "disease or impairment" in the first place.

Again, in respect of the method of teaching complained of: Is it not in the natural order of science to make the regular and murmurless hearts the rule for normality, and to include some with murmurs and irregularities as exceptions to the rule? Yet the author evidently means more than this, but what it is is not plain.

I think it must be held that the examiner for life insurance, who sees the examinee for the first time, is met with the question as to whether a murmur is due to previous disease and malformation or not, and that until a "functional" murmur is defined and methods of proof with statistics are worked out, the verdict can only be given chiefly by means of the clinical experimental method as opposed to scientific demonstration *in toto*, which does not yet exist.

Dr. Mackenzie's paper, however, foreshadows further assistance to the profession in these matters, and I am sure it will be much welcomed when it comes.—I am, etc.,

Sheffield Neave, M.R.C.P.

London, W., Dec. 12th, 1912.

TRANSITORY BIGEMINAL PULSE.

Sir,—The disabilities of living so far away from the centre of the medical universe are great, inasmuch as one's opinions are apt to get somewhat stale in transit. In spite of this drawback, may I venture to comment on a case reported in the Journal of October 5th, page 841, by Dr. William Johnstone, under the heading "A Case of Abnormal Pulse Rhythm"? I will ask your permission to go even further. May I have the temerity to criticize the case reported by Sir Lauder Brunton in the issue of October 19th—a case arising directly out of Dr. Johnstone's report?

I would premise my remarks on both these matters by asking why so many medical men ignore the information to be derived from a tracing of the jugular pulse? In both the cases under review a definite conclusion is impossible without such a record.

Failing certain information one can but suggest probabilities: I would like to suggest to Dr. Johnstone that his case is merely one of a regularly recurring "interpolated extra-systole"; the fact that the combined periods of the first two elements of the trigeminy equal in duration the longer periods makes this explanation very probable. I have noticed that when a heterogenetic rhythm tends to persist, there is frequently a reflex acceleration of the sinus rate, the apparent object of which is to anticipate the heterogenetic beat, and the certain result to restore the normal sequence of contraction of the heart's chambers, and eliminate the intrusive irregularity which must obviously interfere with the efficient performance of the cardiac functions—points which explain the subsequent regular pulse at a rate which is, in virtue of the absence of a time record, probably enhanced, if one may judge by the periods themselves. Dr. Johnstone's case is probably quite simple after all.

Sir Lauder Brunton records a case of bigeminy. The description of the albuminuric patient leaves one with the impression that he conforms to the type in which extra-systoles are common, even though his field of cardiac response is not markedly contracted. On examining the

very meagre radial tracing published, one immediately notes that, if the lesser of the two beats is an extra-systole, the pause is not fully compensatory. Since we are not dealing with "ventricular extra-systoles," the mind turns to "auricular extra-systolic bigeminy" as an explanation, and since this is simple and, on *a priori* grounds, probable, one asks why Sir Lauder Brunton does not advance it. If, however, Sir Lauder demands a really erudite explanation of his tracing I can suggest the following:

1. Pulsus alternans is found in conditions in which the contractility of the muscle is impaired. It is probably dependent on an interference with the rate of restoration of the muscle, such interference being attributable to insufficient blood supply.

2. Dr. Thomas Lewis has recorded a case of "alternation of impulse conduction"—a point noted during some experiments to determine whether the phenomena of asphyxiation depended on oxygen deprivation or CO_2 poisoning.

3. Given "alternation of contractility" and "alternation of impulse conduction," why not "alternation in the rate of impulse formation"? I can conceive of a localized arteritis interfering with the nutrition of the sino-auricular node; I can conceive of a localized area of fibrosis in that region bringing about a similar result; I can conceive of a lesion of the vagal termini just sufficient to keep up for some time an alternating series of inhibitory impulses, provided that some outside influence originated a maximal, or nearly maximal, stimulus.

If Sir Lauder scorns "auricular extra-systole" as being too simple an explanation of his case, I feel sure that "alternation of rate of impulse formation" will not fail by virtue of its lack of complexity. Anyway, I would like to suggest a jugular tracing or any electro-cardiographic record as being easily available steps towards elucidation.—I am, etc.,

MACNEILL SIMPSON.

Sydney, New South Wales, Nov. 24th, 1912.

ESSENTIAL CONDITIONS FOR MILK CONTROL.

SIR,—In addition to the important points raised in the leading article of the JOURNAL upon "Essential Conditions for Milk Control" (December 21st, p. 1720), it is desirable to draw immediate attention to a recent decision of the High Court of Justice bearing upon the registration of purveyors of milk (Spiers and Pond, Limited, *v.* Green). It was decided that a person who occasionally sells milk in connexion with another business, where the selling of milk does not form a substantial part of the business, does not carry on the trade of a purveyor of milk, and therefore does not require to be registered under the provisions of the Dairies, Cowsheds, and Milkshops Order, 1885. This important decision will remove hundreds of small milk vendors from the supervision of sanitary authorities, and experience shows that it is the small dealers that need most supervision, at any rate as far as the condition of the premises is concerned. It is to be hoped that the new bill introduced by the President of the Local Government Board will provide for the supervision of all premises used for the storage and sale of milk, however small the "turnover."—I am, etc.,

THOS. E. FRANCIS, M.D., D.P.H., M.O.H.

Llanelly, Dec. 21st, 1912.

ASSISTANT MEDICAL OFFICERS IN ASYLUMS.

SIR,—I have read with considerable interest the letters in the recent issues of the BRITISH MEDICAL JOURNAL. It is not to be wondered at that there is a difficulty in getting young medical men to fill these appointments. I have had over fifteen years' experience as an assistant medical officer in an asylum, and I consider that there is very great room for improvement in the position of the office. An assistant medical officer is, to my mind, little better than a "glorified house-surgeon and clerk" rolled into one. We have heard a lot of late about the Medico-Psychological Association trying to improve "the status" (whatever the association may mean by this vague term) of the assistant medical officer. Candidly, I think this association has done very little for the assistant medical officer in trying to better his position, and I am afraid is not likely to do much. I know of several asylums where the assistant medical officer is absolutely nobody—kept in the background by the resident medical superintendent; and as to appealing through the resident medical superintendent to his committee of management for due recognition as to his position, why, it would be rank insubordination. Too often the assistant medical officer does practically all the work but the resident medical superintendent usurps the kudos. This is not as it should be. To the public the term "assistant medical officer" means a very minor official indeed. Would not the title "assistant medical superintendent" tend to elevate the status, at least in the eyes of the man in the street? The assistant medical officer's position is one of great responsibility. He has much real hard work, for which there is too often no recognition whatever. The subordinate staffs of asylums are making strong efforts, and rightly so, to improve their positions by the National Asylum Workers' Union. Why should not the assistant medical officer do likewise? I am sure the Lunacy Commissioners and inspectors would support them in their efforts.—I am, etc.,

SENIOR A.M.O.

(Member B.M.A. and Medico-Psychological Association).

December 28th, 1912.

THE REPORT OF THE DEPARTMENTAL COMMITTEE ON SIGHT TESTS.

SIR,—In reference to your article on colour vision at sea in the BRITISH MEDICAL JOURNAL of December 21st I may say that the Board of Trade has suffered through its advisers. For instance, the method of classifying colour blindness recommended by the Committee is absolutely erroneous. The Committee recommends a method of classifying colour blindness by measuring the luminosity of the colour sensations of those examined by the flicker method of photometry. Light sensation and colour sensation are two distinct things. I have examined two bad cases of colour blindness (dichromics who confuse red with green), and their ratios of red to green came out precisely the same as normal on the method recommended by the Committee. I then examined a man in whom I could not detect the least defect of colour perception, and he appeared very colour blind on the Committee's method. Professor A. W. Porter and I examined one of the colour-blind men with very feeble lights from all parts of the spectrum. We could find no defect in his perception of luminosity. As stated in the BRITISH MEDICAL JOURNAL of the time, I offered to demonstrate cases to the Committee, and this offer was refused.—I am, etc.,

London, W., Dec. 22nd, 1912. F. W. EDRIDGE-GREEN.

Public Health AND POOR LAW MEDICAL SERVICES.

EXAMINATION OF ALLEGED LUNATIC.

A CORRESPONDENT writes that he was called in by a relieving officer and magistrate to examine and advise on a case of alleged lunacy, with a view to the committal of the patient to an asylum. After examination he did not feel justified in certifying that the patient was of unsound mind, but directed his removal to the union infirmary. Is he entitled to a fee?

*** This depends on the magistrate. If he ordered a fee the guardians are bound to pay it, but under the Lunacy Act he is not bound to make such an order. The fee is due for making the examination and furnishing the certificate, whether the patient proves to be a lunatic or not.

DR. JULES CONSTANTIN, formerly an assistant of Dr. Doyen of Paris, but lately an aviator with the Bulgarian army, was killed while flying in his biplane over the Turkish army at Tchatalja. It is said he had gone up into the air with the object of dropping bombs into the Turkish intrenchments.

Universities and Colleges.

UNIVERSITY OF OXFORD.

The following candidates have been approved at the undermentioned examinations:

First B.M.—*Organic Chemistry:* A. G. East, F. C. Gladstone, W. R. Greenshields, A. Hodgkinson, R. M. Humphreys, R. W. Lush, J. J. Savage, J. Le R. Shibley, D. H. Skinner, C. H. Terry, A. E. Thomas, W. S. Tunbridge, B. E. Wall, K. F. D. Waters. *Human Anatomy and Physiology:* E. W. Bowell, W. Brown, B. A. Bull, J. J. Conybeare, K. M. Dyott, O. H. Gotch, T. R. Price, S. W. F. Underhill.

Second B.M.—*Materia Medica and Pharmacology:* A. C. Ballance, L. R. Broster, L. G. Brown, F. B. Chavasse, R. C. Fairbairn, R. St. A. Heathcote, R. J. Inman, E. E. Mather, N. A. Sprott, T. O. Thompson, H. A. B. Whitelocke. *Pathology:* F. W. Browne, E. W. Carrington, J. C. Davies, R. St. A. Heathcote, E. W. N. Hobhouse, A. Jackson, M. R. Lawrence, C. W. B. Littlejohn, H. G. Morris, G. S. Robinson, A. H. Southam, G. Stanger, A. B. Thompson, W. W. Waller. *Forensic Medicine and Public Health:* T. B. Batchelor, G. E. Beaumont, R. F. B. Bowes, H. T. Evans, R. A. Fawcus, S. Hibbert, A. Juett, R. C. Ozanne, W. R. Reynell. *Medicine, Surgery, and Midwifery:* G. E. Beaumont, R. A. Fawcus, W. J. Hart, S. Hibbert, A. Juett, E. O'Connor, R. C. Ozanne, W. R. Reynell, J. Sainsbury, E. Scott, G. H. Varley, G. W. Carte.

Degrees.

The following degrees have been conferred:

D.M.—C. D. H. Corbett.

B.M., B.Ch.—H. T. Evans, G. H. Varley, G. Stanger. R. A. Fawcus, E. Scott, J. Sainsbury.

Radcliffe Travelling Fellowship.

A competition for a Radcliffe Travelling Fellowship, of the annual value of £200 and tenable for three years, will commence on February 18th. The names of candidates must be submitted to the Regius Professor of Medicine by February 10th.

UNIVERSITY OF CAMBRIDGE.

The following candidates have been approved at the examinations indicated:

First M.B. Part I. *Chemistry.*—E. V. Beale, D. C. Beaumont, W. E. L. Brown, H Chell, W. L. Dandridge, W. D. Doherty, A. M. Gaselee, H. H. Ginsburg, R. T. S. Gwynne, S. L. Higgs, M. H. Jupe, W. N. Leak, P. C. Livingston, A. G. F. McArthur, J. H. Naumann, J. S. Need, J. W. McK. Nicholl, S. W. Page, E. D. Spackman, M. B. R. Swann, W. E. Vaudrey, S. Waterworth, W. G. Woolrich.

Part II. *Physics.*—E. V. Beale, W. E. L. Brown, T. A. Collot, R. S. Corbett, W. L. Dandridge, W. D. Doherty, A. W. R. Don, A. M. Gaselee, C. I. C. Gill, H. H. Ginsburg, L. B. Hartley, S. L. Higgs, C. R. Hind, J. S. La Fontaine, W. N. Leak, J. B. S. Lewis, R. Lumsden, G. Lyon Smith, R. Mansell, S. W. Page, F. S. W. Raikes, G. M. Shackel, E. D. Spackman, M. B. R. Swann, W. E. Vaudrey, Y. S. Wan, S. Waterworth, W. G. Woolrich.

Part III. *Biology.*—D. J. Batterham, P. J. Briggs, E. B. Brown, G. W. Brown, T. A. Collot, T. L. Crawhall, W. D. Doherty, A. W. R. Don, W. N. Leak, G. T. Lipshytz, G. Lyon Smith, G. S. Need, M. B. R. Swann, G. D. C. Tracy.

Second M.B. Part I. *Human Anatomy and Physiology.*—C. G. Ainsworth, E. H. R. Altounyan, J. Aydon, B. F. Bailey, O. A. Beaumont, S. L. Bhatia, W. K Bigger, A. B. Bratton, F. V. Cant, H. Chadwick, V. M. Coates, A. O. Courtis, D. Crellin, C. S Dodson, J. S. Ellis, J. S. Eloff, E. T. D. Fletcher, C. Gardiner-Hill, C. B. Hawthorne, R C Hewitt, E. P. Hicks, L. G. Jacob, L. W. Jones, C. E. Kindersley, J. B. Leather, F. G. Lewtas, M. L. Loveless, W B. Loveless, H. D. McIlroy, E. O. Morrison, B. Mountain, E. G. D Murray, F P. Nicholas, K. Playfair, R. T. Raine, W. F. R. Schloss, E. P. W. Wedd, W. L. Willett, A. G. P. Wills, C. B. Wilson, W. R. Wilson, G. W. Woodhouse, F. H. Young.

Second M.B.* Part II. *Pharmacology and General Pathology.*—J. W. Adams, W. F. Benstead-Smith, J. H. Cumming, R. W. B. Gibson, G. D. Sherwood, G. H. S. Thomas, R. W. Willcocks.

Third M.B.* Part I. *Pharmacology and General Pathology. Examined and Approved:* J W Adams, W. F. Bensted Smith, J. H. Cumming, R. W. B. Gibson, G. D. Sherwood, G. R. S. Thomas, R W. Willcocks.

Part II. *Surgery, Midwifery, and Medicine*—F. S. Adams, J W. Adams, H. C. Attwood, T E. Banister, H. W. Barnes, F S. Bedale, E Calvert, W. T. Chaning-Pearce, D. G. Cherrington, A. C. Clifford, H. J. Couchman, H. G. Earle, J V. Fiddian, E. C. Hardwicke, T. L Hardy, I. W. Joynt, W. C. D. Maile, C G. H. Morse, H. J S. Morton, T. H. Oliver, T. E. Osmond, G M. Parker, S H Rouquette, L. T. Rutherford, A. S. Seabrooke, F. B. Smith, G. W. Spencer, F. S. Tinker, J. W. Tonks, C. Warner, A. M. Zamora.

Third M.B† Part I. *Surgery and Midwifery*—K B Aikman, J Brewer, E. N. Butler, A. M. Humphry, H. Y. Mansfield, S. G. Platts, Ff. Roberts, D. N. Seth-Smith, W. J. F Symons.

Part II. *Medicine, Pathology, and Therapeutics.*—E. Wordley.

M.C.—J. G. Sauer.

* Under old regulations. † Under new regulations,

UNIVERSITY OF LEEDS.

Degrees.

The following degrees have been conferred:

M.B., Ch.B.—*C. Metcalfe, †H. Angel, †J. H. Blackburn, N. V. Mitton, J. J. Pickles, M. Peto, S Samuel, W. H. Symons, and B. W. F. Wood.

* First class honours. † Second class honours.

Examinations.

The following candidates have been approved at the examinations indicated:

Second M.B., Ch.B., *Part I.*—H. S. Bhalla, H. Franklin, H. M. Holt, C. E. Leake, H. S. Lockwood, J. Rosencwige, J. Smith, R. S. Topham, A. Umanski. *Part II.*—H. S. Bhalla, M. Hutchinson.

Final, *Part I.*—W. D. Anderton, S. N. Cohen, J. C. Gillies, F. King, H. R. Knowles, W. H. Lonen, J. J. Pickles, H. W. Robinson, H Schochet, H. L. Taylor, C. Wilson, J. Wright.

D.Psych.Med.—Alice E. M. Babington.

D.P.H.—H. F. Horne.

LONDON SCHOOL OF TROPICAL MEDICINE.

The following candidates were approved at the examination held at the end of the fortieth session:

S. H. Daukes, A. Moore, *J. A. Beattie, de V. Condon, Major I.M.S.; G. R. Footner, A. Ismail, *E. H. Mayhew, *G. Browse, Major I.M.S.; G. L. Johnston, *J. L. Pawan, *W. C. P. Winter, A. K. Sinha, *R. S. Turton, C. H. Marshall, G. E. Dodson, F. D. Bana, *F. E. Whitehead, *H. C. Swertz, *F. Rice, A. F. Wallace, H. G. F. Spurrell, W. A. Lamborn, J. Dalrymple, P. J. Dunn, *E. M. Condy, A. da Gama, F. G. Rose, *J. M. Benson, H. W. Hayes, *J. F. Hoare, C. W. Mason, R. C. Chakraborty, R. A. Murphy, *E. T. MacIntyre, *W. E. Roberts.

* Colonial Medical Service.

Medical News.

The second International Congress on Life Saving and the Prevention of Accidents will be held at Vienna in September (9th–13th), 1913. His Imperial Highness Archduke Leopold Salvator is patron of the congress. Communications relative to the Congress should be addressed to the General Secretary, Dr. Heinrich Charas, Radetzkystrasse 1, Vienna 3.

We are requested to state that a dance under the auspices of the Birmingham School of Medicine will be held in the Edgbaston Assembly Rooms on January 21st, when it is hoped that all past students and other medical men interested in the school will be present. Further information can be obtained from the secretaries, Cyril A. Raison and Mary I. Hemingway, University Club, Birmingham.

The first of the Friday evening discourses for the coming session of the Royal Institution of Great Britain will be given by Sir J. J. Thomson on January 17th. He will discuss some further applications of the method of positive rays, and on February 28th Mr. C. T. R. Wilson, F,R.S., will describe the photography of the paths of particles ejected from atoms. Other discourses will be given by Sir John Murray on life in the great oceans, and by Professor Andrew Gray on gyroscopes.

The general meeting of the Roentgen Society will be held, under the presidency of Sir J. Mackenzie Davidson, M.B., on Tuesday next, January 7th, at 8.15 p.m., when a paper on spark photographs at high pressure will be communicated by Professor A. W. Porter, F.R.S., and Mr. W. B. Haines. It has been arranged that the society shall meet on the first Tuesday of each month. Further particulars can be obtained from Dr. Robert Knox, 7, Harley Street, W. The meetings take place at the Institution of Electric Engineers on the Victoria Embankment at the bottom of Savoy Street.

The eleventh annual dinner of the Royal Free Hospital and London School of Medicine for Women was held at the Trocadero Restaurant on December 11th. Mr. Stanley Boyd, F.R.C.S., who was in the chair, said that progress and increasing prosperity were the signs of the times, and that the present history of the school was a cause of deep satisfaction to those who, like himself, had known it from its early days. He referred to those who had worked so enthusiastically to create a medical school for women, among whom the name of Mrs. Garrett Anderson, the President of the School, stood foremost. For the first time for many years the school stood free of debt, and, in spite of increasing expenditure in all directions, the finances might be said to be satisfactory. The entry in October last of thirty-seven new students, making a total of 180 students in the school, was the largest for many years. The generous gift of a considerable piece of freehold land adjoining the present buildings would enable the hospital to begin a much-needed extension of premises, which would include a new out-patient department and maternity wards. Several valuable scholarships, bursaries and prizes had been endowed during the past year, and many generous gifts for special purposes had been received from friends of the school. Dr. Walter Carr and Dr. May Thorne responded, and the toast of "The Guests" was proposed by Dr. W. d'Este Emery, and responded to by Sir John Rose Bradford and Admiral Pelham Aldrich. Dr. Sainsbury proposed the health of the Chairman, who briefly replied.

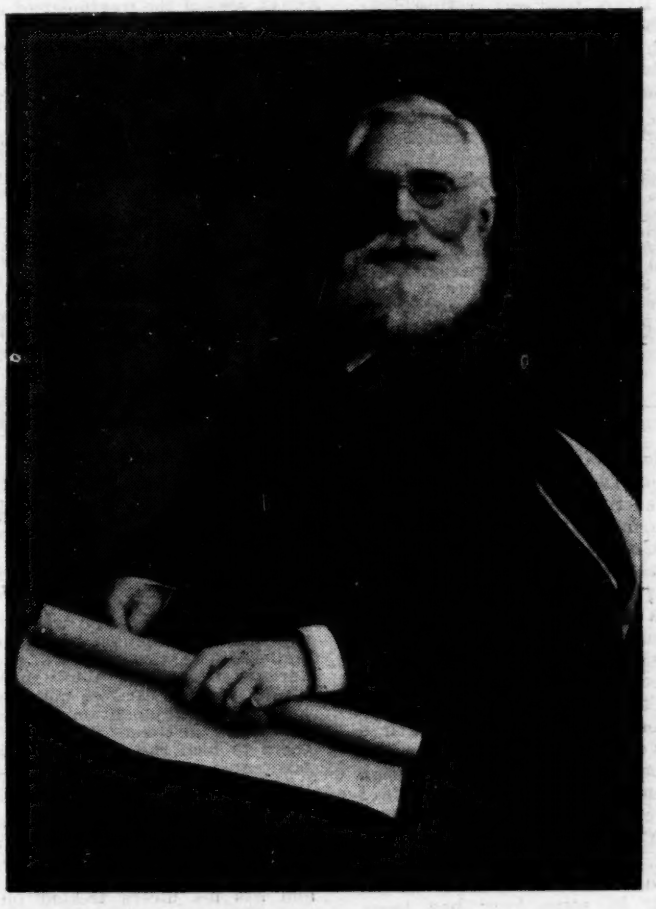
Obituary.

PETER REDFERN, M.D.Lond., F.R.C.S.Eng., D.Sc.,

EMERITUS PROFESSOR OF ANATOMY AND PHYSIOLOGY IN THE QUEEN'S UNIVERSITY, BELFAST.

THE announcement of the death of Professor Redfern was received with great regret throughout the profession in Ulster and by a very large circle of lay friends. On December 17th he celebrated his ninety-first birthday at his seaside home, Templepatrick House, Donaghadee, co. Down. He was then in wonderful health, but caught a cold, which became a bronchial attack, and he died on December 22nd.

Dr. Redfern's was one of the most familiar names for years in the North of Ireland; his outstanding personality, his eloquence, his powers of demonstration, his quickness of thought, his absolute determination to let no preconceived idea influence his observations, his sterling and unflinching honesty, his constant appeal to facts, all constituted him the centre of academic life in the faculty of medicine and a court of appeal in many civic enterprises.



PETER REDFERN.

Photograph by] [*W. J. Kilpatrick Belfast*

Dr. Redfern was born at Chesterfield in Derbyshire, and received a great part of his education in Scotland. He was a student at the University of Edinburgh, and during his student career there was greatly influenced by the teaching of Dr. Hughes Bennett, Professor of the Institutes of Medicine, and enjoyed the friendship of Dr. Handyside and Mr. James Spence, afterwards Professor of Clinical Surgery in Edinburgh. He was, however, a graduate of the University of London; he took the degree of M.B. in 1844, and that of M.D. in 1847, receiving the gold medal at each examination. He became a Member of the Royal College of Surgeons in England in 1843, and a Fellow by examination in 1851, the year before Lord Lister received that diploma.

In 1845 Redfern was appointed lecturer in anatomy and physiology in Aberdeen, and subsequently became professor of those subjects and surgeon to the Royal Infirmary. In 1860 he was appointed first professor of anatomy and physiology in the New Queen's College in Belfast; this post he held till his resignation in 1893, so that he was a teacher of these two subjects for forty-eight years, thirty-three of which were in Belfast. In Belfast Dr. Redfern came amongst a number of very able men. Thomas Andrews, who discovered the liquefaction of gases, was professor of chemistry; Wyville Thomson, subsequently the scientific director of the *Challenger* expedition, was professor of natural history; James Thomson, as profound a thinker as his illustrious brother, Lord Kelvin, was professor of engineering; McCosh, subsequently head of the Princetown University in America, was professor of metaphysics. In the original plans of the Queen's College no provision had been made for a faculty of medicine, and it fell to Dr. Redfern to guide the authorities in the matter; one result was the erection of dissecting-rooms, museums, and lecture-rooms, well up to date in convenience and facilities for work, and much in advance of those of the time. When he entered on his duties the largest class for anatomy and physiology was 79; chiefly attracted by his teaching, the numbers rose to 156 in 1866 and to 325 in 1881–2. When the Royal University was established and trust in the stability of university life in Ireland was lost, Ulster students flocked across the water and the numbers fell. Dr. Redfern foresaw what was about to happen. As a whole-time professor his retiring allowance was based on the average number of students of the last three years, and when the authorities were hesitating he promptly resigned and brought the chief teaching of the medical school to an abrupt termination. Finally he was practically asked to withdraw his resignation, and, as was understood, on his own terms. His action in this emergency showed his determination, courage, and foresight.

Any reference to the life of this veteran would be incomplete without some mention of him in the lecture-room or dissecting-room. The notice of his death will recall literally to hundreds of medical men scattered throughout the world occasions of sharp, yet kindly, reproof, of terse sentences of condensed wisdom, that are probably, in their universality, a guide in life to them even now. "Oh, you think you see! Cannot you see a body of a red colour, measuring so many inches by so many, without thinking?" "Mr. ——, do you know the peritoneum?" "Oh, reduced to hoping you know it; a very poor condition!" "Mr. —— did not see what was before him; he saw what he thought; what was in his own mind."

A collection of these sayings, repartees, and aphorisms would furnish no mean guide to public, private, and scientific life. What he had said, what he had advised, what he had found, was more frequently quoted from day to day by generations of students than the words of any other teacher in the school. In his earlier days he made several contributions to medical literature on the growth and nutrition of cartilage.

On his retirement in 1893 his colleagues, pupils, and friends presented him with his portrait, which now hangs in the Examination Hall of the Queen's University. The chair which he had filled for so long with distinction was divided; Dr. Symington was appointed professor of anatomy, and, thanks to the munificence of the Dunville family, a separate chair of physiology was instituted, to which Dr. W. H. Thomson was appointed. Dr. Redfern acted as examiner for the London University and other boards, and was an original member of the Senate of the Queen's University in Belfast.

He received the honorary degree of D.Sc. from the Queen's University, and was a corresponding member of the Royal Academy of Medicine, Belgium. He was one of the secretaries of the annual meeting of the British Association

in Belfast in 1874, and when the British Medical Association met in that city in 1884 Professor Redfern delivered an address in physiology. After his retirement he continued to take an interest in educational matters, and was a member of the Board of Governors of the Belfast Royal Academical Institution and of Campbell College.

He married in 1860 Miss Youngrove, a member of a distinguished Aberdeenshire family, and is survived by her and by three sons and five daughters. His eldest son is Dr. J. J. Redfern, visiting physician to the Croydon General Hospital; two other sons are in the army; his eldest daughter married Professor W. H. Thompson, now of Trinity College, Dublin.

At a meeting of the Belfast County Borough Local Medical Committee held in the Medical Institute, Belfast, on December 23rd, 1912, when there was a large attendance, Professor Sir John W. Byers, who was in the chair, referred in feeling terms to the great loss sustained by the profession in the recent death of Dr. Redfern. The following resolution was proposed by Dr. R. W. Leslie, LL.D., President of the Ulster Medical Society, and seconded by Sir Peter R. O'Connell, M.D., D.L., and passed in silence, the members standing:

> That the members of the Belfast Local Medical Committee desire to take the earliest opportunity to express their sense of the great loss sustained by the medical profession in the recent death of Dr. Redfern, who during the thirty-three years of his professorship at Queen's College, Belfast, did so much to establish and extend the prestige and reputation of the Belfast Medical School. They rejoice to know that in all phases of his pre-eminent career he did everything in his power, both by precept and example, to uphold the scientific position and the dignity and honour of the profession of medicine.

We regret to record the death of Dr. Edward Mazière Courtenay, which occurred on December 20th, 1912, as a result of pneumonia. He was the son of the Rev. D. C. Courtenay, Rector of Glenarm, and a nephew of Sir Mazière Brady, Bart., Lord Chancellor of Ireland. After graduating in Medicine at the University of Dublin, he directed his energies from the first to the study of mental disease. He commenced his practical work in England, but after a few years he was appointed Medical Superintendent of the Limerick District Asylum, a post which he held till 1890, when he became Inspector of Lunatics and Member of the Board of Control of Asylums in Ireland. In this position he did the work of his life. At that time lunatic asylums were abodes of dread; admission to the "madhouse" was regarded not only as a misfortune but as a stigma. Through strenuous and persistent efforts, extending over years, the entire character of these institutions has been altered. The "airing yards," with their hopeless rows of idle patients, have disappeared; tracts of land were acquired, on which even the incurable can be healthily engaged, and work in some form has been found for almost every one. Industries have been fostered, not so much for the sake of economical administration as for the curative influence of employment. A sense of comfort was introduced, and even amusement was not forgotten. As a natural consequence, listlessness gave place to interest, and comparative happiness prevailed in place of an atmosphere of sullen gloom. Cures were effected in increasing numbers. Prejudice was gradually dispelled, and the friends of the inmates came to look upon asylums as real refuges for the mentally afflicted. This was all the more important as the ratio of insanity in Ireland was increasing. In initiating and carrying out these reforms Dr. Courtenay took a leading part, and many a medical superintendent of asylums feels grateful for the assistance perseveringly and successfully rendered in securing better conditions of life and treatment for the most helpless and most pitiable section of our population. The private life of Dr. Courtenay was marked by the same qualities as were manifested in his service to the public. Unassuming and unselfish to a singular degree, he has left behind him in the hearts of many a memory and an ideal of what a friend can be.

Letters, Notes, and Answers.

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

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☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Spinal Puncture in Epilepsy.

Audax asks if the treatment of epilepsy by spinal puncture advocated by Dr. Giacomelli has been adopted by any one else, and, if so, with what result. Further, is there any painful reaction a few hours afterwards?

ANSWERS.

Dr. J. S. Bolton (Nottingham), in reply to "T. H. G." (December 21st, 1912, p. 1740), states that *x* rays will often cure blind external fistula, and suggests that the same treatment would be suitable in "Delta's" case.

Varicose Ulcers.

Dr. R. Allan (Dumbarton) writes: If "J. H. M." would apply Mead's rubber plaster once every sixth day, the plaster to be applied only 1 in. beyond the edge of the ulcer, and covered with Gamgee tissue, then apply elastic bandage 3 in. by 3½ yds., and before renewing dressings clean skin with turpentine, taking care not to touch the granulations with anything, I think he would meet with success.

Dr. H. J. Thorp (Ipswich) writes: I have found the following ointment most serviceable: ℞ Hyd. ox. rub. benè levigat. gr. x, vaselin. alb. ad ʒj. Ft. ung. *Yellow* vaseline is too irritating. The varicose vein must be supported by bandaging the limb.

Dr. George Pernet (London) writes: A good method is that recommended by Unna. I dealt with it fully in the British Medical Journal for 1909, vol. i, p. 463. If carried out on the lines laid down it is very useful in the ambulatory treatment of this obstinate condition.

F. W. writes, in reply to "J. H. M.": Grafting meets with success, after getting ulcers in a healthy state by rest, elevation of limb, boracic lotions, and, of course, treating the cause.

Dr. W. Odell (Torquay) writes, in reply to "J. H. M.," to say that in his opinion calcium iodide given in 3-grain doses, well diluted, thrice daily, will promote permanent healing of varicose ulcers more rapidly than any other drug.

T. H. M. writes: Varicose ulcers will not heal while they are kept in a septic condition with ointments, etc., nor will they heal while the tissues are gorged with venous blood; to get them to heal the thickened edges must be reduced. In favourable cases they can be got to heal by wearing a Martin's bandage while on foot and an antiseptic lotion at night, and I may mention that an old bicycle tube, split and washed, the thickened join cut away and old patches removed, make the best "Martin's" bandage I have used; the old used tubes are best. If "J. H. M." cannot cure his patient's ulcer by this means, he had better tell him that unless he goes to bed and has his ulcers treated on ordinary surgical lines, including skin grafting if possible, he will have to put up with them. The only place for effectually dealing with these cases is hospital.

LETTERS, NOTES, ETC.

Dr. Edward Coyle, of Belfast, writes to express his interest in a paper by Dr. Mackenzie published in the Journal of December 14th; after thirty years' experience of cardiac cases he desires heartily to endorse Dr. Mackenzie's attitude with regard to the need for reform in the diagnosis of heart affections.

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